TRADE ASSOCIATION ACTIVITIES

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DEPARTMENT OF COMMERCE
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
JULIUS KLEIN, Director

DOMESTIC COMMERCE SERIES—No. 20

TRADE ASSOCIATION ACTIVITIES

(SUPERSEDES TRADE ASSOCIATION ACTIVITIES
ELIMINATION OF WASTE SERIES, 1923)

PREPARED BY
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and
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LETTER OF SUBMITTAL

DEPARTMENT OF COMMERCE,
BUREAU OF FOREIGN AND DOMESTIC COMMERCE,
Washington, September 27, 1927.

SIR: There is submitted herewith a revised edition of Trade Association Activities, prepared by Irving S. Paull, J. W. Millard, and James S. Taylor. The factual material is evidence of the full cooperation of hundreds of trade association secretaries, without whose assistance the book could not have been written. The appendix on Government relations has been prepared to satisfy the growing demand for information as to those aspects of the Government's work which are of special interest to trade associations.

An advisory committee, composed of Edward Eyre Hunt, Ray M. Hudson, Wilbur J. Page, A. Heath Onthank, John Mathews, jr., and Mortimer B. Lane, guided the preparation of the edition and contributed portions of the manuscript.

The committee is indebted to the Hon. Nelson B. Gaskill for his good counsel, and particularly for the manuscript on the legal aspects of statistical activities (Chapter IV); the committee is also indebted to the Chamber of Commerce of the United States for making available the helpful collaboration of F. Stuart Fitzpatrick of its organization service and for the assistance of its department of manufactures and its department of domestic distribution.

Valuable contributions were made by H. D. Hubbard, W. E. Braithwaite, L. Seth Schnitman, E. L. Priest, F. R. McGowan, Maurice H. Bletz, and A. Lane Cricher.

While space does not permit an enumeration of the many other contributors, both in the trade and in Government departments, to whom the committee is indebted, it should be said that more than 500 officers of trade associations and 50 officials representing 17 Federal departments and independent bureaus aided in the preparation of the volume.

Respectfully,

JULIUS KLEIN, *Director,*
Bureau of Foreign and Domestic Commerce.

To Hon. HERBERT HOOVER,
Secretary of Commerce.

FOREWORD

In 1923 the Department of Commerce issued a volume on Trade Association Activities. The present publication is intended to bring this work up to date.

The purpose of this and of the previous publication is to indicate the successful service of trade associations in public interest. In the field of scientific and economic research, in statistics, in simplification and standardization of commodities, in the promotion of arbitration in commercial disputes, in development of foreign trade, and in scores of other directions trade associations have made a most valued contribution to our economic progress.

While our industry and commerce must be based upon incentive to the individual, yet the national interest requires a certain degree of cooperation between individuals in order that we may reduce and eliminate industrial waste, lay the foundation for constant decrease in production and distribution costs, and thereby obtain the fundamental increase in wages and standards of living.

Trade associations, like many other good things, may be abused, but the investigation of the Department of Commerce shows that such abuses have become rare exceptions. Within the last few years trade associations have rapidly developed into legitimate and constructive fields of the utmost public interest and have marked a fundamental step in the gradual evolution of our whole economic life.

HERBERT HOOVER,
Secretary of Commerce.

TRADE ASSOCIATION ACTIVITIES

CHAPTER I

INTRODUCTION

The first trade association dates back to the Civil War, and although the movement in its beginning was looked upon as a by-product of consolidations, it has developed far beyond its point of origin. With unified effort in the elimination of waste and with other constructive achievements to its credit, self-regulation and cooperation have become the primary characteristics of trade association activities, and the economic advantages have become increasingly plain.

As Attorney General of the United States, Hon. Harlan F. Stone said, "Practically every industry has its trade association. Many of these are operating along lines which are entirely lawful and of considerable benefit to the members and to the public; some are groping in the twilight zone of illegality; a few are wholly illegal."

Trade associations represent a natural development of our commercial and economic life. Their extraordinary network extends through practically all branches of industry and trade. Most associations are national in scope; a few are international. There is no common pattern for their organization. Some are constituted horizontally, comprising certain stages of production or distribution; others are constituted vertically, their membership including representatives from every link in the chain, from producer of raw materials to the ultimate retail distributer. Organizations of a technical nature resembling trade associations in many respects, and closely affiliated with them, introduce tangents and diagonals into the business organization charts. Certain firms may belong to as many as a dozen associations. A manufacturer of chemicals is probably interested in not less than five associations of manufacturers alone. The same is true of a manufacturer of hardware. Variety of function and geographical distribution of the membership may create diversity where uniformity seems desirable. Sometimes there are two or more associations supplying identical services divided because of some original difference of opinion or other peculiarity. Undoubtedly, there is duplication of effort and overorganization in some portions of the field.

Like other business organizations, these have passed in 25 years from the stage of partnerships to that of corporations with boards of directors, general managers or executive secretaries, and a staff. Through such bodies small firms secure some of the advantages usually inherent in large aggregations. Information is exchanged, standards of business conduct are set up, market-extension campaigns are undertaken, and programs to further the elimination of waste are mapped out.

The emphasis on cooperative action in eliminating waste is one of the most striking developments.

Chapter II outlines the organization problems of trade associations and the way in which these are commonly met. It also discusses methods of financing association activities.

It was not until 1915 that any substantial number of trade associations began regularly to compile statistics, yet to-day we owe to them the majority of our current business statistics. These data are indispensable to most lines of business and to the Government. Their collection and distribution represent a valuable public service. In no other way can the situation as regards sales, production, purchase, and consumption of materials be so promptly grasped and utilized. Statistical compilations are usually supplied to the members of the associations and to other persons interested, including trade papers and governmental agencies. (See Chapter III.)

The legal status of the statistical activities of trade associations is discussed in Chapter IV. In recent decisions of the United States Supreme Court, as a report of Attorney General Sargent shows, the Government has found a way to bring about "uniformity of policy and practice which will be of assistance to business men who desire by cooperative methods to eliminate waste and unfair practices in industry and at the same time to keep strictly within the law."

The Federal Trade Commission recently declared, in announcing a conference with representatives of trade association executives, that the meeting "is further evidence of the desire of the commission to enlist the cooperation of business men in the discharge of its functions on a basis of confidence and understanding and thus to avoid the litigations and delays which are necessary results of misunderstanding and opposition."

The service of trade associations in promoting uniform cost accounting is described in Chapter V. This development is even more recent than the development of statistical services. Through cost accounting the associations endeavor to find out costs of production and distribution, to promote efficiency in buying, selling, and manufacturing, and to provide a basis for comparison with past cost records.

Cost analysis frequently leads to industrial research and further steps in the elimination of waste. By encouraging cooperative research trade associations have encouraged and popularized better management methods. (See Chapter VI.) A very conservative estimate would indicate that the associations are spending $35,000,000 a year for industrial research. The number of university fellowships supported by trade associations must be about 400. Sixty-one research associates are maintained in the Bureau of Standards by trade associations.

Simplification and standardization in industry (see Chapters VII and VIII) owe much to trade associations. Simplification and standardization mean to the manufacturer more economical production, more efficient labor, and less capital expenditure. To the distributer they mean increased turnover of stock, decreased overhead, better service, and decreased capital requirements. To the consumer they mean better values, better quality, and prompt deliveries. Operating through trade associations in collaboration with the division of simplified practice of the Department of Commerce, American industry is saving, by means of simplification alone, $500,000,000 a year.

Commercial standardization, on the other hand, is only in its infancy, although more than 200 technical societies and trade associations are working in this field. Trade associations are spending on standardization more than $3,000,000, and the center of gravity is shifting from the technical groups to the trade groups, but widespread industrial participation has hardly begun. The progress which has been made by trade associations in this field is a development of the last 10 years.

Chapter IX, on public relations and cooperative advertising, describes another important industrial development. It is estimated that associations spend each year not less than $10,000,000 on commercial advertising. For example, 47 associations are spending $7,000,000 annually in periodical advertising, and 6 typical associations engaged in marketing agricultural products spend more than $2,000,000 annually for this purpose. Competition seems to be shifting from the small to the large units, the characteristic effort of the present day being to create new business rather than merely to swap customers.

Chapter X, which treats of trade relations and arbitration, covers a field in which the trade association has been of great value to its members and to the public by doing away with trade abuses and unethical practices. The value of these services is difficult to estimate in money, but it is clear that the evils which they combat lay an enormous burden on legitimate business. Commercial arbitration

has substantially aided in reducing unethical practices and trade abuses. Many associations have an arbitration clause in their standard contract of sale, and some associations expel members who refuse to arbitrate trade disputes.

Credit and insurance bureaus are described in Chapter XI. Some associations report their credit activities as extending only to the assembly and dissemination of information relating to Federal and State laws which deal with collections, bankruptcy, conditional sales, and similar matters; others maintain genuine credit bureaus, and to these some associations add a collection service. Collection bureaus are a recent development.

About 100 associations are engaged in various ways in helping to solve the insurance problems of their members. Group insurance plans have been developed through insurance committees, and the associations have taken active steps for the reduction of various types of losses.

Trade associations have also been active in attempts to reduce industrial accidents and labor turnover, to increase efficiency in production, to encourage the training of workers and understudies, and to develop teamwork and morale in industry. Certain associations collect and distribute figures on labor turnover; others have gone far in the study of problems of training and education; accident prevention has also been an element in their work. (Chapter XII.)

Chapter XIII discusses traffic service. This activity has resulted in marked economies in many fields, depending, of course, on the territorial distribution of the membership of the associations, as well as on the nature of the commodities purchased or sold and the character of the competition which must be met. Traffic bureaus under association auspices have proved helpful to the Government in connection with freight and express classifications, miscellaneous rules and regulations, and questions relating to car supply. The auditing of transportation bills, the publishing of traffic measures, and the promotion of bulletin services are other activities of these bodies. Cooperation toward more efficient shipping also falls within their field.

Chapter XIV and succeeding chapters treat of trade associations in connection with the industries which they represent. The trade associations whose activities are described are not presented as the only groups in the field, neither are they presented as the most important. The principal reasons for their selection may be found in the relative amounts of data furnished by the trade secretaries or in the forcefulness with which certain activities were illustrated.

Chapter XIV, for example, shows that it is through trade associations that the term "construction industries" has come to mean a coherent and articulate group instead of scattered units. Local builders' exchanges, contractors, and real-estate boards are nationally

grouped. Various bodies representing the material manufacturers, lumbermen, lumber distributers, structural steel fabricators, brick and tile manufacturers, and many others are also banded together in national associations. Intergroup activities of the construction industries, both technical and nontechnical, are also described in this chapter. A representative intergroup body is the National Committee on Wood Utilization, established in 1925. This new body is developing methods of eliminating waste of effort and material in all stages of wood utilization—logging, milling, drying and seasoning, storage, handling, and fabrication.

National associations of railroads and other public utilities are described in Chapter XV. The public utility group includes electric street railways and electric light and power companies. Manufacturers of electrical equipment and the contractors and contractor dealers are united in active associations.

Chapter XVI is devoted to trade associations representing the automotive, aeronautic, and highway groups. The cross-licensing of patents, the promotion of automobile shows and exhibits, and the collection and dissemination of various types of statistics are among the activities listed. Recent national conferences on street and highway safety, promoted by trade associations and the Government, have been held in an effort to reduce the growing number of traffic accidents.

The mining and oil industries with their various trade associations are described in Chapter XVII. The associations in the bituminous-coal industry are not representative of a sufficiently large share of the business to act in crises for the industry as a whole, and this has been one among many reasons for unstable conditions in the bituminous-coal industry. During the strike of 1922 operators individually agreed, at the suggestion of the Government, to hold down prices at their respective mines. The collaboration of the bituminous associations, together with the association of anthracite operators, in the investigations undertaken by the United States Coal Commission in 1922–23 is also described.

There are numerous associations representing zinc, copper and brass, and petroleum. Some excellent standardization work has been accomplished, particularly by the latter, in collaboration with technical societies.

The metals and machinery industries are organized in various trade associations and professional bodies representing iron and steel, hardware, and the machinery manufacturing industries. These are based in part on similarities in technical and operating problems and in part on similarities in products. (Chapter XVIII.) There are also associations representing the sheet and tin-plate manu-

facturers, foundries, and various iron and steel products such as steel barrels, steel furniture, and hardware. A coordinating national committee on metals utilization, with headquarters in the Department of Commerce, is described in this chapter, its purpose being to eliminate industrial waste and to carry simplified practice more deeply into the metals field, unifying specifications and stimulating mass action in applying corrective measures.

Chapter XIX describes trade associations in miscellaneous manufacturing industries, including paper, printing, rubber, tanning of leather, boots and shoes, and chemicals.

In several branches of the textile and clothing industries (Chapter XX) trade associations of general scope are matters of recent development. The earlier national bodies of cotton and wool manufacturers tended to operate within limited bounds and lacked active local or State chapters. The knit-goods associations have been more effectively organized. Associations in clothing manufacturing and jobbing vary in type according to the prevailing size of the units. Most are concerned with credit and collection services and trade relations, and the local branches of some handle employee relations and agreements with trade unions.

Chapter XXI deals with the chain of associations represented in the marketing of farm products and the manufacture and distribution of foodstuffs. More efficient farm operation and management, improved statistical information, improved transportation, standardization of grades and qualities, enlargement and improvement of warehousing and cold-storage facilities, improved financing, better business documentation, simplified trading relations, and the development of markets have been some of the activities of these organizations.

The term "trade associations" probably does not strictly apply to all of the groups concerned. Farmers' cooperatives, grain growers' cooperatives, cotton growers' cooperatives, and others; fruit growers' exchanges, associations of livestock dealers, milk producers and dairymen, together with a variety of commodity exchanges, suggest the groups working in this field. Manufacturers and distributers of various foodstuffs have brought about marked improvement in methods. Intergroup activities, such as the adoption of uniform warehouse receipts and the standardization of grades and qualities, have been important achievements of these associations.

Chapter XXII describes the associations in the wholesale and retail trade, among them grocers, druggists, dry-goods dealers, credit men, accountants and controllers, and miscellaneous wholesalers and retailers.

Banking and insurance associations, described in Chapter XXIII, are characterized by the high percentage of membership which they

draw from their field. The banking associations are interested in employee training, legislative and regulatory problems, and in the prevention and detection of fraud. The insurance associations collect information for legislative committees, develop plans for training salesmen, and make studies of selling methods and advertising. Educational work is carried on to reduce accidents, illness, and fire wastes.

Chapter XXIV deals with technical, auxiliary, and special-purpose groups. While for the most part these groups are not trade associations, yet their work in cooperation with trade groups, and the fact that most trade associations or their members have membership in these groups, necessitates more than passing consideration.

The vast number of contacts which trade associations maintain with the Federal Government are outlined in the appendix. The contact of industry with the Government has been maintained to a very large extent through trade associations and their special committees. Through them industry has drawn a vast amount of factual information and stimulation which has flowed out into commercial and industrial channels through hundreds of streams. The Government, on the other hand, has drawn from them many suggestions and much guidance in its dealings with business. Collaborating with the Department of Commerce there are nearly 350 standing committees, and in a period of five years more than 1,250 conferences with industrial groups have been held under the auspices of the department.

CHAPTER II

HOW TRADE ASSOCIATIONS ARE ORGANIZED

Up to the beginning of the present century trade associations were in the partnership stage of their growth. Their form of organization was loose and their procedure leisurely. Their members were partners, sometimes suspicious partners, in what to them was an untried and, to many, a doubtful plan of associating competitors together for some object of common concern. Their financial resources were meager. Their meetings were social gatherings rather than business conventions to discuss and formulate constructive programs for their industries or trades. Their committees, officers, and governing boards, as well as their members, acted more or less independently of each other—pulling often in opposite directions, neither creating a responsible leadership nor accepting that which was offered; not hesitating to establish new organizations if things did not go the way it was thought they should go, or perhaps shattering the existing organization without replacing it with anything—a loose partnership form of organization, indeed! Yet through such partnerships business men first found out the limitations of trade association effort, and then, at length, the possibilities of organized and intelligent group action.

There came a time in one industry or trade after another when a sufficient number of business men with sufficient experience in trade association effort and trade association possibilities asked these three questions: What do we want to do? How are we going to do it? What is it going to cost us?

In considering the question, "What do we want to do," it was necessary for business men, on account of State and Federal antitrust laws, to find an answer to the question, "Can we legally do what we want to do?" In the past the unsatisfactory status of the legal boundaries of possible trade association activities has been a considerable handicap in perfecting such organizations.

Fortunately, court decisions and voluminous public discussion have cleared up several moot questions. The legal boundaries of trade association effort are now to some extent marked out. Business men too have adopted a more tolerant attitude, based on a keener self-consciousness of their relationships to the consuming public.

which may be expressed in the succinct phrase of a past president of the Chamber of Commerce of the United States, as "What is not for the public good is not for the good of business."

THE INCEPTION OF AN ASSOCIATION

In the final analysis, the members of each trade organization, or the men engaged in an industry or a trade who propose to organize or revitalize a trade association in their line of business, must analyze the particular business environment in which they operate and find an answer in concrete terms to the question of what they want to do. A practical and definite program, stated in specific terms, is needed.

The question, "What do we want to do?" does not, in the nature of things, lend itself to a final answer. Shifting conditions of competition, new opportunities, increased prestige, and broader vision change men's views of what they want to do by changing their views of what they can do through cooperative effort. Competitors to-day interchange experience and information and carry on, as a matter of course, cooperative activities which yesterday they would have looked upon as fantastic.

In the early days of trade associations informational organizations with limited financial resources, without paid managers in the modern sense, and with independent committees, were set up. Experience led to the tightening up of this form of organization. As might have been expected, the principles of the organization of the business corporation were applied as nearly as any might be to these voluntary associations of business men. Provision was made for the election by the membership of the association of a relatively small governing board, charged with the duty of determining the policies and supervising the administration of the affairs of the organization. Provision was made for the employment of a competent paid manager and other necessary paid staff, charged with the duty of carrying into action the policies of the association and of administering its affairs.

BASIS OF MEMBERSHIP

When a man joins a trade association he can not anticipate a direct-profit return for his investment. His trade association may pay dividends, but not in the usual sense of that word. Further, he must invest in his trade association some of himself as well as some of his money. He or his firm must assume a share of the responsibility for the association's activities, whose effective performance costs not only money but cooperation. This practical kind of cooperation in turn brings him into contact with the other members of

his trade association and brings the operations of his business in touch with the operations of their businesses. Information is interchanged, standards of business conduct are set up, market expansion campaigns are undertaken, and programs are mapped out for elimination of waste. The relationships which such activities involve are not the simple relationships of the investor to the corporation in which he has invested.

Men do not enter permanently into these relations with other men in their trades or industries unless they have an identity of interest. It is not enough for them to feel vaguely that something ought to be done or to be told in general terms what a trade association might do for their line of business. They must know specifically what their common, as distinguished from their individual, interests are. If these common interests do not exist, there will be no trade association. If they do exist and their existence is not realized by the men who possess them, there will be no trade association. The social forces which an identity of interest set to work become fully operative only when they have forced the men concerned to recognize their importance by a clear analysis and concrete statement of what they are. Organized group action or trade-association activity follows on the heels of such analysis and such a statement.

MEMBERS

An industry or trade can be organized only by bringing its units or a representative number of them into association. These units consist of individuals, firms or partnerships, and corporations. As members they give the association its vitality and significance.

It is necessary to define carefully what individuals, firms, and corporations may comprise the active membership of the particular trade association, in order that its control may rest securely in the industry or branch of business it represents. In some cases membership is confined to those who have been actively engaged for one or two years in the industry or trade represented. Ordinarily those who cease to be actively engaged in the line of business organized are dropped from membership.

Honorary membership may be conferred, by special vote of the members, upon those considered suitable for such designation, but honorary membership is not common among trade associations.

It is often desirable to make provision for an associate membership for those who, while not engaged in the particular trade, are interested in it. An association of wholesalers, for example, may provide such membership for manufacturers of their line. Associate membership carries with it all the privileges of active membership except the right to vote or hold office, and, in some cases, to partici-

pate in business meetings. It is a means for bringing an association into close contact with important factors in related businesses. Many trade associations have associate members.

In order to safeguard the association, careful provisions are drawn regulating the admission of members. The new member is required to subscribe to the articles of association or by-laws; to the code of ethics, if there is one; and to any agreements regarding unfair trade practices, the submission of trade disputes to arbitration, or the holding of shows and exhibits, and similar matters to which the members of the association may be pledged to adhere as a unit. A membership committee usually investigates and passes on the applicant before definite action on admission is taken by the board of directors or governing body, to whom, as a rule, this responsibility is intrusted.

To further safeguard the association, provision is usually made for the suspension or expulsion of members for cause. This cause may be the nonpayment of dues or some action which reflects unfavorably on the good standing of the association or violates its code of ethics or agreements regarding unfair practices, arbitration, or other considerations.

While membership in a trade association is made up of firms and corporations, as well as individuals, it is only through individuals that the functions of membership may be exercised. Hence it is necessary for a firm or corporation to appoint some responsible person (an officer or a member of a partnership) to represent its membership with voice and vote. Even though more than one such representative may attend meetings, it is the usual rule that each membership carries with it only one vote.

When a trade association is some form of federation, important units in its membership are organizations. These organization members may be geographical units or groups—either State, sectional, or local—which are federated in a national organization, or they may be trade associations representing different classes or divisions of an industry associated for purposes common to them all. These federations may also have individuals, firms, and corporations as members, who do not find it convenient, for geographical reasons, to affiliate with a local chapter of the federation. These organization members are represented in meetings and in other functions of membership, either through delegates, on the basis of membership or of dues paid, or through equal representation on the federation's governing board.

THE GOVERNING BOARD

The governing body of a trade association is usually charged with the "general management and control of the affairs, property, and funds" of the association, and is given general power to determine

the association's policies, subject to such restrictions as the members may embody in the by-laws or such instructions as they give at duly called meetings. Referendum voting is provided for in some instances. It is used whenever, in the judgment of the board of directors, any question arises which they consider should be put to a vote of the active membership and it is not expedient to call a special meeting.

In a few associations the governing board is empowered to pass judgment and to make the final decision on questions only when, in their judgment, the subject requires immediate action, the benefits of which would be impaired if held over for action of the members in convention, or when it is not a matter of sufficient importance to be submitted to the members. For practical purposes, however, the elective governing group or board of a trade association is its directive head and mouthpiece. In it are centralized the association's management and control.

The structure of this governing body varies to meet different requirements. As a rule, while large enough to make it adequately representative of membership interests, it is sufficiently compact to be a workable group, having a membership of 10 to 30 directors or trustees. These directors are elected by ballot at the annual meeting of the association's members. They are usually nominated by a committee, members being given the opportunty to place additional names in nomination from the floor. This latter provision safeguards the association from the dangers of the "official ticket" procedure.

In making nominations through a committee, there may be placed on the ticket the exact number of candidates for the places to be filled, or twice this number. The latter practice, while giving the members a wider choice from which to select their directors, makes every election a contested one. This has its disadvantages; there are many men possessing the qualities for leadership who do not care to enter a contest for office. The provision for independent nominations from the floor has been found through experience to be an adequate safeguard and to insure a wider choice of candidates where there is a demand for it. This method is frequently used. The consensus seems to favor confining nominations to the number required to fill vacancies.

Terms of office are made sufficiently long to gain for the association the judgment which comes through intimate contact with its affairs over a period of time, without impairing the governing board's responsiveness to the membership or shutting off the inflow of "new blood." The terms range from two to four years. It is often provided that the terms of a portion of the members of the board expire each year.

Members of the governing bodies of some associations are elected on the basis of geographical representation of members. Sections, zones, or manufacturing districts are marked out. Directors representing members in these areas may be elected by the membership at large, or simply by the members of each district.

Somewhat similarly, governing boards may be constituted so as to represent organization members. They may simply consist of representatives of affiliated organizations, or provision may be made for such representation in addition to directors elected by individual members. Where local groups, clubs, or organizations are federated, or are created as a part of the trade association's organization machinery, provision may be made for their representation on the governing board, either individually or in groups in zones or sections. In addition, if there are individual members as well as local club or organization members, provision is made for their representation.

OFFICERS

The officers of a trade association are an integral part of the governing board, with the exception of the secretary, who, as a rule, is not a member of the association but is a paid executive employee not engaged in the industry or trade represented. The officers are elected either by the board or by the members.

The consensus favors board election of officers. The board is a selected group, responsible to the members and to the public for the association's conduct and welfare. It is well qualified to select officers after careful deliberation, which is impossible in an annual meeting of members. The usual officers are a president, vice presidents, a treasurer, and a secretary. They serve without remuneration, except the secretary, who is salaried and serves the association as its administrative officer. In cases where the secretary is a member of the board and is nonsalaried, the paid administrative official has some other title, such as general manager. The president is the association's chief executive officer. He is chairman of the board and presides at meetings. The treasurer is responsible for the collection and depositing of the association's funds. In some cases the offices of treasurer and secretary may be held by the same person.

THE SECRETARY

The secretary, or manager, or paid executive has been an important factor in the creation of responsible and aggressive leadership in trade association work. When business leaders bring to the organization of their trade associations the same serious thought which they apply to the organization of their own business enterprises,

they realize the necessity that the staffs of those organizations be comprised of able and experienced men.

If the problem confronting the group is one of nation-wide publicity the type of secretary needed is defined by that problem; if hammer and tongs are needed to wipe out some disorganizing evils within the industry another type of secretary is called for.

The trade association's paid executive is an integral part of its leadership. His success is measured in terms of his capacity to lend effective support to the board of directors in planning and executing the association's work. In that capacity he acts as impartial counselor to the industry or trade. His interest is not that of any one plant or establishment but of the branch of commerce or industry as a whole. Being an outsider, so to speak, being paid, and having a professional reputation at stake, he is in a position to lend force to the association's executive functions.

COMMITTEES

It is recognized now that committees are the right arm of the board of directors, whose function is to assist the board in performing its task of making the association intelligently articulate; in other words, in carrying forward its leadership activities. Committees are appointed by the board, or by the president subject to the approval of the board. They are responsible to and report to the board, whose action is necessary before the association may be committed to any course of action as a result of committee investigation and recommendation.

This centralization of control in the board of directors does not lessen the prestige of committees nor the importance of their work. The major purpose of the association's committee organization is to bring to the board of directors the informed opinion of the membership. In such circumstances committees will necessarily play an important rôle in the formulation of the association's policies and in the education of its members. The committees are the chief sources on which the association draws for facts and the interpretation of facts. They are cross sections of the membership at work on that constantly recurring question, "What do we want to do?" Their responsibility to the board of directors enhances the importance of their work by bringing to it a central direction and by giving it, when indorsed, the backing of the whole association.

Competent staff assistance for committees is by no means universal, and yet the failure to make provisions for it explains the failure of many committees. The members of a trade association committee have little time for research. Their work as committee members is to

digest facts which are brought to their attention, and then to bring to the interpretation of these facts and to subsequent recommendations a seasoned business judgment.

If a competent staff man, either the manager of the association or one of his assistants, serves as secretary of the committee to see that the course which is charted is held to and that the necessary data are assembled, then the committee members are in a position to make effective use of their time and may be counted on to bring in a worthwhile report. On all committees, except those which are dealing with the simplest subjects, a qualified staff of one or more persons is essential.

DIVISIONS OF MEMBERS

The work of some associations is further decentralized through the creation of divisions of members. These divisions may be either geographical or functional, or both. This does not refer to trade associations which are federations of other trade associations or of local groups in the same industry or branch of business.

As a rule, these divisions are functional—that is, the members of the association are classified according to the branch of the business in which they are engaged. The divisions are organized with their own governing committees and chairmen or presidents, elected in each case by the members of the division. In some cases chairmen of division committees, as such, are members of the association's governing board. Division membership may or may not be compulsory, but, when accepted, the member is subject to the by-laws of the division, which of course may not conflict with the by-laws of the association. The governing committees of divisions are responsible to the governing board of the association. The staffs of divisions are, or should be, under the control of the secretary of the association. Otherwise the problem of administration may be made vexatious on account of the independence of divisional secretaries.

In some cases associations charter geographical divisions or organizations of members. Such associations are not greatly unlike those which federate local groups. Arrangements are made in some instances for holding sectional meetings of members, with a sectional vice president in charge.

There might be mentioned in this general connection the subordinate organizations of the employees of members which some trade associations have formed. Buyers, accountants, managers, and other technical men engaged in the branch of business or industry are brought together for the mutual exchange of ideas and for other educational purposes.

FINANCING

The financing of a number of trade associations is built on these two strong pillars: One, an equitable system of dues assessments based upon ability to pay; the other, a flexible system of dues assessments designed to enable the association to adjust yearly, if necessary, its income to the estimated costs of its work.

When a business man or a firm in a given line is asked to become a member of a trade association he is asked to subscribe his share of the budget, which is a definite sum for the purpose of carrying on specified work. When he agrees to the subscription or assessment he becomes a member with the same rights to vote and with the same privileges as all other members. The share of the budget for which this member obligates himself is determined by some measure, such as sales, production or output, productive facilities of plant capacity, capital invested, raw materials used, employees, or pay roll, which, in the judgment of the industry or the trade, is an equitable measure of ability to pay. The man (or firm) who joins a trade association joins a voluntary group which is organized on the modern democratic principle of equal franchise and dues assessments according to ability to pay.

Successful financing, however, must be more than equitable. It must be counted upon to produce with some certainty a given amount of revenue, or, better still, to produce with certainty the amount of revenue the work determined upon requires. Where some measure of ability to pay is used, such as sales or production, and where, under the by-laws, a fixed sales classification or a fixed percentage or rate upon sales, production, or output is used to apportion dues assessments, the dues income of the association fluctuates with the business done by its members. Uncertainty in the amount of the association's incoming revenue is the result—a result which is a distinct disadvantage to the association's executive and legislative power in planning. Work and revenue become disjointed. The important partnership between activities and costs—which are so intimately related that the consideration of the one demands a consideration of the other—requires, if it is to be fully operative, a more flexible financial relationship.

Flexibility may be introduced into the organization's financing, and has been introduced by a number of trade associations, by empowering the association's governing board to determine in advance what the association will undertake in a given year, what it will cost, and what percentage or rate upon the previous year's sales, production, or output (or some other measure) must be fixed in order to produce the revenue to cover this cost. The rate or percentage, then, is not an inflexible item in the financing, but becomes

a flexible item controlled by the board of directors. It becomes, so to speak, a tap to the financial resources of the industry or branch of commerce which, within practical limits, the board may use to create a greater or lesser amount of income for the association, and they can do this with reasonable certainty of obtaining the revenue called for. Giving the board of directors this power is an advanced step in building up the responsible and aggressive leadership which has made trade associations the effective organizations which they are to-day.

A comparison of trade association income and expense is revealed by the following study, covering 73 associations, prepared by Joseph N. Sletten, executive secretary of the National Funeral Directors' Association:

Classification by incomes:	Number reporting
$5,000 to $25,000	25
$26,000 to $50,000	13
$51,000 to $75,000	8
$76,000 to $100,000	9
Over $100,000	13
Not disclosed	5

COLLECTION OF DUES

Of the 73 associations referred to above, 68 reported that the headquarters of the national association collected the dues directly; the other 5 had machinery for collecting dues through district, State, or departmental offices.

ADMISSION FEES

Fifty-one trade associations, or nearly 70 per cent of the associations replying to questionnaires, do not have any admission fee for new members. Admission fees for those associations practicing this policy vary from $5 to $2,000.

GRADUATED OR FIXED DUES

Forty-seven of the 73 associations reported that their dues were on a graduated scale basis. In the cases of associations with graduated dues the individual payment of dues was found to be based on one of the following plans:

1. Dependent upon the production volume, either so much per ton, so much per dollar value of production or sales, or so much for each unit of production.
2. Dependent upon either gross or net sales volume.
3. Dependent upon the number of units of machinery in a factory or plant.

4. Dependent upon the number of employees per member.

5. Dependent upon the number of the member's branch houses.

6. Dependent upon the amount of capital invested in the business of each member.

7. Only one secretary reported that the dues were levied on the assessment plan after the association expenditures were made. That is, at the end of a month each member is notified what his share of the association's operating expenses for the previous month amounted to, and he is assessed for that amount.

PAYMENT PERIODS

Sixty per cent of the associations reported their dues payable annually, 10 per cent reported their dues payable quarterly, while 30 per cent reported dues payable monthly.

The study of the replies received does not indicate that there is any connection between the amount of the dues and the time the dues are payable—that is, associations with large dues per member collect these dues either monthly, quarterly, or annually, and associations with very small dues collect their dues either monthly, quarterly, or annually also.

SIZE OF DUES

The minimum dues vary from $5 to $1,000, whereas the maximum dues paid by any member vary from $5 to $35,000.

FINANCIAL ARRANGEMENTS WITH SUBSIDIARY ORGANIZATIONS

Of those replying 87 per cent stated that they had no financial arrangement with any State or local association. The nine trade associations which have such financial arrangements with State or local associations seem to work on the old per capita dues plan, that is, the subsidiary associations pay per capita dues to the national association.

SOURCES OF ASSOCIATION INCOME

Of the 73 associations included in this study 32 reported that they were entirely dependent on the dues received from their total income. Those with incomes from other sources derived these incomes from such activities as publications, service bureaus, admission fees, convention exhibits, convention registration fees, interest on investments, special assessments.

The 15 associations which had incomes from publications averaged about 15 per cent of their total income from this source, although 4 associations reported that more than 25 per cent of their income was derived in this way; the 11 associations which had incomes from

service bureaus reported an average income of 23 per cent from this source. It was found that the proportion of association incomes from admission fees is practically negligible; 10 associations reported an average of 18 per cent of their income from convention exhibits; and 17 trade associations indicated that they were prosperous enough to have income from interest on investments.

BUDGETARY CONTROL

The increased use of the budget in controlling trade association expenditures is reflected by the fact that only 11 of the 73 associations replying to the questionnaires reported that they did not operate on a budget.

Thirty-two associations reported their fiscal year ending December 31. The next most popular date for the ending of the fiscal year is June 30. A number of trade associations have their fiscal year end immediately preceding their national conventions.

The usual method of adoption is to have the budget approved first by the board of directors and then adopted by the members of the national convention. The experience of trade associations seems to indicate that it is a wise policy to have the vouchers signed by one other officer in addition to the secretary. The general practice seems to be to have the accounts audited at least annually by certified public accountants.

AN AVERAGE BUDGET

The following average budget is based on replies from 62 associations:

	Per cent of association income
Salaries	48
Quarters	6
Printing	11
Postage	3
Legal expense	1
Furniture and equipment	1
Office supplies	1
Periodicals and dues	2
Telegraph and telephone	2
Travel and entertainment	8
National convention	2
Expenses board of directors' meeting	2
Committee appropriations	3
Bureau appropriations	5
Surplus or sinking fund	5

Special activities, such as national advertising, research work, publicity, scholarships in educational institutions, testing of formulas and standards, are generally financed by means of special assessments.

CHAPTER III

STATISTICS

The number of associations gathering statistics at the present time amounts to well over 100. An inquiry made by E. H. Naylor of the Writing Paper Manufacturers' Association in 1926 and directed to 150 representative trade associations in this country showed that 75 of these issued statistics regularly, while 50 did not issue any and the remaining 25 failed to reply. The associations issuing statistics are made up mostly of manufacturers, while the associations covering distributing trades do not, in general, issue statistics.

Many associations collect statistical data only once a year, either as the basis of their annual dues or as a general survey of the industry. The statistical activities of still other associations are confined to the issuance to their members of bulletins containing compilations of statistical data collected through other sources, such as Government departments or trade papers. These more limited statistical activities of trade associations will largely have to be omitted from this chapter and the discussion confined mainly to the collection by associations of current statistics directly from their own members.

Some associations collecting statistics directly supplement these by data compiled from outside sources, such as export figures from the Department of Commerce and price and employment indexes from the Department of Labor, but the association's main contribution to knowledge of the conditions in its industry will be made through its own statistics. Since 1921 the Department of Commerce has undertaken to furnish in convenient form for industry as a whole what the trade association does for its own industry in collecting all the current statistical information available. These have been published in the Survey of Current Business each month as a guide not only to general business conditions but to the relative progress of the various industries. The Survey of Current Business in general does not contain all the details available on each item, the reports of the trade associations in each industry usually furnishing the necessary details which would not generally be of interest to those outside the industry.

PRACTICAL VALUE TO BUSINESS

The monetary return from the use of business statistics is hard to measure in specific terms. Still, a few examples are available. A

cement dealer saved thousands of dollars on cement purchases by watching the cement and transportation statistics to determine the proper price at which to buy. A sugar refinery was able to forecast from current sugar data the unprecedented consumption of sugar in 1925 by August of that year and to adjust its purchase and sales policies thereto. Knowledge of market conditions through statistics has enabled a firm of leather exporters to save from 2 to 4 cents a foot on leather for five years past, besides a great deal of time. Farmers in Kansas reported savings of 47 to 60 cents a bushel on their wheat sales in 1924 by following statistical analyses. A machine-tool manufacturer changed his stocking time from a falling market to a rising market, as the result of studying his association reports, thus saving carrying costs of idle stocks in depressions, obtaining interest on his investment and profiting from low-cost stocks made when better workmen were available at the bottom of a rising market.

Such examples of the use of statistics, together with the continued increase in statistical work, both by new associations entering the field and by the expansion of the work of other associations, are definite marks of the fulfillment of a real need. The importance of trade association statistics to business executives was well expressed by Gerard Swope, president of the General Electric Co., in an interview upon the program of the newly formed National Electrical Manufacturers' Association, of which he was elected president (quoted in the Electrical World, December 4, 1926):

> In my opinion the greatest immediate good will result to electrical manufacturers from this association if it brings about the tabulation and dissemination of industry statistics and secures the adoption of a uniform cost-accounting system by all manufacturers. Statistics and cost accounting are fundamental to the intelligent conduct of any business. An essential requirement for successful management to-day is prompt and accurate information on available business and market conditions. Another essential is a knowledge of costs of manufacture. These two business aids arm an executive with the tools for doing business successfully. An organization such as this permits the members to cooperate in the compilation of these data for the benefit of all.
>
> The collection of industry statistics is one of the great tasks of a trade association. These statistics must be made available to the public as well as to members of the association and must conform to certain restrictions, but not to a degree where their benefit to the industry is impaired. Statistics as to production, quantity produced, shipments, sales, orders received, unfilled orders on hand, stocks on hand, and of employment can be collected and disseminated.

The president of a large hardwood mill recently stated to the Chamber of Commerce of the United States the following advantages of trade association statistics:

> Trade statistics gathered by our association are decidedly helpful in the operation of our business. In fact, they are a necessity.

The two major objectives of statistics are, first, that all those engaged in industry may be as nearly on an equal basis as possible in regard to knowledge of the basic industrial facts, and, second, that each concern may regulate not only the prices but its sales and production policy in harmony with economic conditions.

A man well informed as to the basic facts of his industry can proceed with more confidence in ordering the daily affairs of his business; he can follow a policy wherein there is a basic continuity as against a policy of opportunism in which he may find it necessary, and generally does, to feel his way and reverse himself from time to time.

WHAT TO GATHER

The organization of statistical work in a trade association is usually intrusted to a committee. This committee, with the assistance of the secretary, studies the statistics needed by the industry and the methods of obtaining them. It reports its findings to the entire association and leads the discussion on the subject among the members. Once a statistical program has been adopted, the work of carrying it out falls almost entirely upon the secretary or manager or a statistician in his office.

The value of trade association statistics depends in a large measure upon the manner in which they are collected and presented. Statistics gathered and prepared without care or without attention to the best statistical practice may often be misleading rather than helpful. A trade association secretary should therefore familiarize himself with the accepted principles of current statistics, it often being advisable to secure expert assistance in this matter. Misleading statistics are worse than no statistics at all. Well-organized statistics, like a smooth-running machine, give ample returns in earning power through uses which executives make of them.

Of prime importance to the future utility of association statistics is the decision as to what to gather. The results can show no more than the items to be asked for on the blank. The importance of each item to the industry, therefore, should be carefully weighed. Those items should be included which there is reason to believe will prove useful to the industry and which may be readily obtainable, but this list should not be expanded too far, owing to the possible lack of available records by smaller concerns and to the danger of making the blanks too cumbersome. Other items or details can be added later as demand develops.

Before deciding definitely upon the items to be covered, investigation should be made of the current statistics already available on the subject, which inquiry of the Department of Commerce will probably disclose. This procedure will, in the first place, prevent possible duplication of data already being gathered. Secondly, it will enable any trade association to make its blanks conform in

classification to statistics of imports and exports on the commodity in question, to the production figures shown in the census of manufactures, and to any other related current figures. If the items are made comparable with these other figures, association members can readily find out the exact relation which their figures bear to the census production figures, can calculate the percentage of their product exported each month and compare their progress, item by item, with competing or consuming industries.

The particular items to be gathered will vary as between different industries according to the special requirements of each industry, but, in general, the five figures considered essential are those for production, shipments, stocks, new orders, and unfilled orders, or such modifications as may be necessary to meet the particular requirements of the industry or trade under consideration.

Among the associations covering all these five items in their reports are the National Association of Sheet and Tin Plate Manufacturers, the Oak Flooring Manufacturers' Association, the Maple Flooring Manufacturers' Association, the Tight Barrel Circled Heading Manufacturers' Association, the Illuminating Glassware Guild, the Glass Container Association, the Paving Brick Manufacturers' Association, the Paperboard Industries Association, and the National Association of Finishers of Cotton Fabrics. All these associations, except the three covering wood products, also show their figures as percentages of capacity. In some lines stocks are not generally carried and such statistics are thus of no importance, while in others production and shipments or production and orders may occur at approximately the same time and may thus be combined. In certain lines machinery activity is used as an indicator of production, as in the reports on silk machinery by the Silk Association of America, and on printing activity by the United Typothetæ of America. The Locomotive Crane Manufacturers' Association and the Electric Overhead Crane Institute secure data on inquiries, which in the equipment field anticipate orders by a considerable period and thus show the first indications of changes in business sentiment.

Many associations need further details on their statistics, such as the expression of certain data in dollars as well as in quantities, the segregation into types, sizes, grades, etc., and segregation of orders and shipments by geographical districts. The tire figures compiled by the Rubber Association of America are classified by kind (cord or fabric), by size (regular, heavy, or balloon), by shape (clincher or straight-side), and by the many different tire measurements.

The figures on hardwood lumber, compiled by the Hardwood Manufacturers' Institute, are classified by species (red gum, sap gum,

oak, etc.); by grade (No. 1 common, etc.); by district (southern or eastern); and by the various dimensions. The Tubular Plumbing Goods Association and the Association of Cotton Textile Merchants of New York also present reports in great detail.

Many associations have found that State or district totals are particularly advantageous in studying local conditions which may be entirely different from the national situation. As examples of geographical segregation may be cited the Paving Brick Manufacturers' Association, which presents its shipments by State of destination, the Common Brick Manufacturers' Association, classifying its figures by State of production, the Life Insurance Sales Research Bureau, presenting its new insurance business by States, the National Association of Real Estate Boards, classifying its data by cities, and the American Railway Association, with data divided into railway-operating districts.

Reports in dollars are not generally so valuable as those in quantities, owing to price fluctuations, but in some lines, where the sizes of the items differ materially, such as the machinery statistics collected by the Foundry Equipment Manufacturers' Association, the pump statistics collected by the Hydraulic Society, and the office furniture statistics collected by the National Association of Steel Furniture Manufacturers, dollar amounts have, up to the present time, provided the only means of totaling their data. A rather novel classification is that presented by the National Machine Tool Builders' Association, which groups firms according to size and presents relative numbers on that basis.

The details asked for on the blanks should not be so minute that their segregation would reveal the operations of individual concerns. For instance, if it were known that only two members were making a certain grade of goods, the segregation of that grade from the others would permit each firm to know what the other was doing. Such details should be eliminated from the forms.

PERIOD COVERED

When the items to be collected are decided upon, the period of time covered by each report must be determined, whether daily, weekly, semimonthly, monthly, quarterly, etc. As a rule, monthly reports have proved the most popular. They are less susceptible than weekly returns to temporary influences, and thus can be compared with greater confidence. On the other hand, some industries want figures more often, and in certain cases daily reports are made on some items, such as orders, shipments, and prices. The issuance of more frequent reports, however, puts a heavier burden on the members as well as on the clerical staff of the association.

PREPARING THE FORM

With the above questions decided, the schedule or form for obtaining the reports can be set up. It should be simple and clear. Experience has shown that even in the reports given most careful consideration, questions are misunderstood, and as a result the figures sent in are not those desired. There should be a meeting of minds on the exact definition of the terms, and to that end all items should be clearly defined, or explained in a footnote if necessary. Some associations, for instance, require reports only on stock goods, like the National Association of Steel Furniture Manufacturers, or on standard grades, like the Paving Brick Manufacturers' Association, and omit special ware entirely from the compilations, but if this definition is not clearly stated on the blanks, many firms may include the special goods. Even the definition of the commodity itself is often necessary, as the exact dividing line between many articles—such as box board and paper board, locomotive cranes and power shovels, structural steel fabrication and steel-plate work—is often difficult to draw without a definite statement. Definitions in some detail of the exact data to be reported are printed on the forms distributed to members by the News Print Service Bureau, the Bureau of Envelope Manufacturers of America, the Cordage Institute, and the American Face Brick Association.

The items of production, stocks, etc., also need definition, for those not accustomed to reporting these kinds of statistics. Some firms, for instance, will report as new orders their gross orders, while others will deduct cancellations; some consider that their orders are filled once they are produced, while others wait until they are shipped before deducting them from the unfilled-order total.

To remedy this situation, a committee on statistics was appointed in October, 1925, by the American Trade Association Executives, the national organization of trade association secretaries and managers, and its preliminary report to the association recommends that standard definitions be adopted. A subcommittee of the Sectional Committee on Standards for Graphic Presentation, sponsored by the American Society of Mechanical Engineers, is studying these definitions in further detail. The definitions are as follows:

New orders.—In defining data relative to new orders it is allowable to report two additional items or curves, one to be called "Cancellations," which are to include all items taken off the order record during the period under review, either by cancellation or by writing off unfilled balances that are not shipped, and the other to be called "Net new orders" (which gives the net balance for the period) or "New orders" minus "Cancellations." The committee particularly would discourage the use of the word "sales" as indicating orders, reservations, bookings, contracts, or commitments. Accounting

practice definitely designates sales as applying to items delivered and billed. The sales forces improperly think of an order as a sale.

Unfilled orders.—This term properly indicates the sum of all unfilled balances of orders, reservations, bookings, contracts, commitments, so-called, or ".sales," as they appear on the records at the close of business on the last day of the period under review.

Shipments.—This term is recommended to be used as indicating not only amounts and values of commodities placed in cars or trucks for delivery, but also commodities delivered over the counter, and sometimes alluded to as cash sales or retail sales. Any action which transforms a commodity into a dollar-and-cents charge against a purchaser is recommended to be reported under the term "shipments," as standard statistical practice.

Stock on hand.—This term is recommended to be used as indicating all finished stock, whether sold or unsold, actually warehoused at the close of business on the last day of the period under review.

Production.—This term is recommended to be used as indicating the quantity of goods actually finished, ready for shipment. It would properly be calculated by taking the sum of the stock on hand at the end of the previous period, plus the shipments made during the period under review, minus the stock on hand at the end of the period under review. This, then, would give the figure for production that would eliminate all physical loss during the period under review.

In line with making the reports as clear as possible, the facts to be gathered on the form should be reported as units rather than as percentages or relatives, owing to the difficulties of combining the latter data. For instance, we may take the simple illustration of a supposed industry with two plants. One, a 10,000-ton plant, produced in a given month 5,000 tons, which is 50 per cent of its capacity. The other, a 1,000-ton plant, produced 1,000 tons, which is 100 per cent of its capacity. If an association secretary secured merely the percentages of capacity he would have just these two figures, 50 per cent and 100 per cent, which averaged would give him 75 per cent as representing the per cent of the industry's capacity which was active. This 75 per cent figure, of course, would be an error. The total capacity of the industry is 11,000 tons. Its total production is 6,000 tons. The actual per cent of the industry's capacity which is active is not 75 per cent, but 54.5 per cent.

The mere reporting of percentages of capacity or of increase or decrease from the preceding month fails to establish the proper relationship between large and small firms, unless figured out on a basis of total capacity as indicated above. How much easier it is simply to report the items in units, such as tons, in the first place, so that only one addition need be made! Some executives, it is true, will give only percentages. They seem to be afraid to give their unit or absolute figures, even to their association. The misleading tendency of percentages when combined as a simple average has been revealed in the example cited. If, to avoid such errors, the capacities of plants as well as the percentages of capacities

active are given, then the association's secretary obtains the unit figures anyhow in order to get his finished product. Giving the unit figures in the first place saves time, energy, and clerical work.

A detail of the form that should not be overlooked is the name of the association and the exact address of the person to whom the report should be returned for compilation. Often such reports are missent to Government departments or to other organizations and may be lost or greatly delayed in getting to the proper person.

On the first report it might be advisable to secure figures on capacity so that definite percentages of production, etc., can be calculated in the future. As mentioned above, such figures on the relationship to capacity are important items in the reports of many associations. The capacity figures should be revised about once a year to take account of changes in the industry.

The capacity item should be carefully defined, owing to the tendency of companies to use inflated figures designed to make an impression in sales talk. Where capacity can be ascertained by machine measurements, as in the box-board industry, an accurate indicator can be obtained, but otherwise the capacity of a plant is apt to vary with the individual making out the report, unless it is tied down to a strict definition. On the other hand, capacity for making a particular product is elastic at best, especially in plants able to produce other articles. For instance, a fabricator of structural steel may turn his plant to the fabrication of plate work, shipbuilding, the construction of railroad cars, etc., and thus keep his force busy, although working at far below capacity on structural business alone, while even on strictly structural work the tonnage will vary considerably as between light work and heavy work.

To overcome as far as possible such difficulties, the Bureau of the Census has used in its inquiry relating to structural steel the following definition, which may be modified to suit other industries:

> Capacity of the plant is to be regarded as the tonnage of structural steel work that actually could be turned out running single turn on the character and class of structural work that the plant ordinarily secures. Structural work is considered as all work using structural shapes.

The carelessness with which some concerns fill in the report form has led some associations to put the schedule into the form of a balance sheet, so that all the items shall check. The Paving Brick Manufacturers' Association, the Bureau of Envelope Manufacturers of America and the Illuminating Glassware Guild secure an exact balance on all the items on their reports. A form of balanced reports is given below in some detail, covering all the principal factors of products and materials, showing the balance maintained between the quantities appearing opposite the various items. This

form goes even further than most association reports, which generally cover only the sales and production situations:

SALES SITUATION

Unfilled orders, end previous month		10,000
New orders	5,000	
Cancellations	1,000	
Net new orders		4,000
Total demand in orders		14,000
Shipments	8,000	
Returns	1,000	
Net deliveries (shipments)		7,000
Unfilled orders, end of month		7,000

PRODUCTION SITUATION

Stocks, finished goods, end previous month		3,000
Production		8,000
Total supply finished goods		11,000
Net shipments	7,000	
Stock adjustments	1,000	
		8,000
Stocks, finished goods, end of month		3,000

PURCHASE SITUATION (MATERIALS)

Purchase orders unfilled, end previous month		5,000
Purchases	3,000	
Cancellations or resales	1,000	
Net purchases		2,000
Total commitments		7,000
Receipts	4,000	
Returns	1,000	
Net receipts		3,000
Purchase orders unfilled, end of month		4,000

CONSUMPTION SITUATION (MATERIALS)

Stocks, materials, end previous month		4,000
Receipts	4,000	
Returns	1,000	
Net receipts		3,000
Total supply raw materials		7,000
Consumption	5,000	
Stock adjustments	1,000	
		6,000
Stocks, materials, end of month		1,000

An important part in the success of trade association statistics is the confidence reposed in the secretary for the complete secrecy of individual returns. This secrecy must be inviolable and usually only the association secretary or a trusted clerk is permitted to see the individual returns.

In some association offices the returns are placed upon an adding machine, and as soon as the totals are obtained the original reports and all records relating thereto are destroyed. While this is an ideal method of assuring permanent secrecy of the individual reports, a difficulty is presented where identical firms do not report each month, in that it is almost impossible to secure an accurate total at some future time for comparison with a more complete current report for the industry. This can be remedied in many cases by having a list made of the reporting firms so that the gaps may be filled in later from the nonreporting firms. However, where concerns discontinue their membership, though still in business and no longer included in the reports, the past association totals can not be made comparable with the subsequent reports without deducting the missing firms' figures from the totals. If no record of the individual reports is kept by the association this will be impossible without resorting to duplicate figures from the individual firms, which may entail considerable annoyance. A coded record of past figures, the secretary alone being in possession of the code, overcomes this difficulty.

Some associations, instead of having an individual firm sign the reports, put a key number on each form so that no one will know the identity of the firm reporting any set of figures. In such cases the secretary alone knows the firms to whom the key numbers are assigned. In certain associations the assignments of the key numbers are even kept secret from the secretary, being known only by some outside organization, such as the trust officer of a bank, to whom the reports may be sent, and then transmitted in bulk to the association office for tabulation.

COLLECTING THE DATA

Although some associations give their members a supply of forms to last for some time, most organizations send out the forms regularly to reach the members on the last day of the period to be reported. This latter method has the advantage of acting as a reminder that the report is due. Daily reports, of course, can be supplied more easily in advance, and in the case of weekly reports that procedure might also be applied with economy in mailings; and it is easier to remember the day of the week on which reports are to be made

than the day of the month, especially as the latter may vary from month to month, with delays in the compilation of a firm's figures. Weekly reports, however, must be sent promptly on the day appointed, as their issuance on time is more vital, covering, as they do, such a short period.

To secure prompt attention, the forms should be addressed directly to the person in charge of the statistics for each company. It should be understood by each reporting official that the reports must be taken care of promptly and that in his absence they must be filled out by some one else, and not merely left on his desk for two or three weeks in times of vacation, sickness, etc.

The sooner the forms can be returned to the association office the quicker the tabulation can be made for the benefit of the industry. On monthly reports members are usually asked to send in their data within 10 days, although in many cases 20 to 25 days may elapse before all reports are in. The reports of the American Iron and Steel Institute and of the American Zinc Institute are examples of compilations distributed within 10 days after the close of the month. The value of news as perishable as monthly business statistics is greatly increased by gaining a few days in publication, and every effort should be made by the secretary to show each member the importance of reporting promptly. Telegrams are generally sent to those firms whose reports are not in at the specified time, and personal calls on habitual delinquents have proved effective in securing more prompt attention to the reports. The secretary of a lumber association points out in a symposium conducted by the Chamber of Commerce of the United States that in the constant effort to get returns in early some associations have made rebates in the members' dues, based on the number of reports turned in, while others do not send the reports to members who do not contribute data. This latter method, it is stated, is not very effective, as those who desire the results will usually contribute their figures.

COMPILATION

If it is possible to obtain all reports early in the month, the tabulation should include all members each month, or at least the identical reporting firms, so that the figures from month to month may be strictly comparable. If identical firms are not available, the figures in units will not be strictly comparable, but may be made approximately so through showing the percentage relation which each item bears to the capacity of the firms reporting for each particular month. Where no capacity figures are available to make comparisons of this kind, the report should distinctly state that a certain number of firms are missing. If the reports for the missing

firms come in at some later date, the early reports can be revised to show a true comparison of identical firms. Where the missing firms are very small and habitually late, it is better to have the tabulation made without them, for the revision in the subsequent month by the addition of their figures would not change the conclusions to be drawn from the data, and the advantage of speed will more than compensate for the slight inaccuracies. The American Electric Railway Association compiles its reports in this manner, showing the percentages based on the identical reporting firms, later revising the data to include additional reports. In the face-brick industry the number of reporting firms varies so greatly that the American Face Brick Association finds that an average per firm is the best comparison between various periods, and the Piano Bench and Stool Manufacturers Association also compiles its reports on this basis.

If nonidentical figures are compared in percentages of capacity, care should be taken that the data are representative. Should it happen that several large firms were missing one month, even a comparison on a percentage basis might not be correct, because the missing firms might have a different trend. The more detailed the statistics are the more important it is to have reports from identical firms. For instance, firms not reporting might comprise 2 per cent of the total association output and their absence would be negligible in this respect; but these firms might make 10 or 15 per cent of a particular grade of the product for which separate figures were collected, and their absence would have a considerable effect on the totals for that grade. The same considerations apply to geographical segregations, as well as divisions into grades, and the like.

As a matter of fact, to be of any real use to any industry the association statistics should include 50 per cent or more of the industry's normal output, and 70 per cent is advisable to insure a representative character. Less than these percentages might not show the true trends, and in such cases it might be advisable not to compile the figures until enough additional reporting firms are secured to obtain a comprehensive report.

Where there are changes in the membership of an association, particular care is needed to keep the reports comparable. The association reports might at all times include 100 per cent of the association membership, but if that membership were often increased or decreased the reports would not be comparable. New firms added to the roster should be asked to send in their respective reports for previous periods to be added to the previous totals, in order to have comparable reports. The American Dry Milk Institute has increased the representative character of its identical reporting firms by this method. It is not advisable to add firms singly, owing to the possi-

bility of disclosing their operations. In this case, the one firm's reports had better await the admission of a second member before being added to the old reports. When a member withdraws from the association, arrangements may be made to have the firm continue its reports so as to insure comparability of the totals. If this is not possible, the firm's figures can be subtracted from the totals, provided another firm is either added or withdrawn at the same time, so that individual figures are not revealed.

On the other hand, where a firm goes out of business or retires from that particular line, its past data need not be deducted from the association reports, for the totals will still be comparable, since the liquidating firm's report thereafter will be zero. Any business which would have gone to that firm in the past will be distributed to the other firms in the industry and thus still will be shown in the totals. Similarly, a firm just beginning business can be added to the totals without destroying comparability with the past, for its business will come from what otherwise would go to the remaining firms in the industry.

When an association has had a rather rapid growth over a period of years and it is impossible to secure figures from the new firms over the earlier period, the reports can still be made fairly comparable by finding the percentage which the production of the firms reporting in any particular year bears to the production of the year in which all the firms reported and by prorating the figures of the other years to the level of this latter year by these percentages. In this manner the data for the Hydraulic Society were recently put on a comparable basis from 1919 through 1926, in spite of a considerable increase in the number of reporting members, and a similar method was employed to obtain comparable data for the National Association of Paper Box Manufacturers from 1923 through 1926.

In an industry where capacity figures are collected, the above results can be secured more accurately and with less effort by merely prorating the figures on the basis of the relative capacity of the two periods. Many associations, especially in the lumber field, apply this method month by month by prorating the figures of the varying number of firms reporting each month up to a certain standard on the basis of the relative capacity of the reporting firms to the capacity of all the firms included in the standard. The accuracy of this method is shown by comparing the close relationship between the total lumber production compiled monthly on this basis from association reports by the Bureau of the Census for the Survey of Current Business and the annual census returns. By the former method the production of lumber, although many species were unreported, showed an increase of 6.7 per cent from 1924 to 1925, while by the final census figures, including all species, it increased 8.3 per cent.

The advisability of not showing separately such details as would reveal the activity of individual firms, owing to inadequate representation in that item or because one or two firms were the only makers of a particular style or grade, has already been mentioned. In such a case, the particular grades could be combined with other similar grades or put into a miscellaneous classification or omitted altogether.

Individual operations are also liable to be revealed if each firm's data are shown separately on the tabulation sheet that goes to the members even if given merely a code number. Such segregation of individual figures may be identified by competitors, owing to the knowledge of when certain large orders were placed, and thus reveal individual operations. This revelation of the business of competitors hardly comes within the sphere of free competition.

PRICE STATISTICS

The compilation of price statistics should be watched with particular care. Such statistics can be collected, tabulated, and distributed without taking on the significance of unlawful intent or without producing an unlawful result. Careful distinction must be drawn between this operation and the Eddy "open-price" association, in which prices to be quoted are circulated among the members. Nothing in this discussion has any relation to the "open-price" plan. As the Secretary of Commerce stated in addressing the Trade Association Conference in Washington on April 12, 1922: "The officers of the Government do not believe that these functions (open-price reporting) are in the public interest, whether they are used in violation of the law or not."

Knowledge of prices at which sales have been consummated is one thing; exchange of prices proposed to be quoted is quite a different matter. One is the record of a fact which affords an essential element in the equipment of an individual to deal competitively with intelligence. The other is a submission of plans which almost certainly results in unanimity of action or agreement, in effect if not in form. Agreement as to future price is prohibited, and so is agreement not to differ in price.

The collection of sales-price statistics is not legally determined by the period covered by such reports; therefore a monthly or daily service stands on the same plane so far as time only is concerned.

The collection of sales prices tends readily to the manipulation of market prices through the device of restricting reports to the "best" sales. It became apparent to several associations early in the development of statistical service that a rising market was materially assisted if the sales reports carried only such transactions

as were at the crest or above it, while reports including sales below the peak tended to retard the upward movement. Likewise, reporting only "best" sales tended to check the movement of the downward market. Such a method of reporting sales is manipulation of the market, a suppression of truth for the purpose of creating a false impression, an unlawful method of accomplishing an unlawful object. The association which collects, compiles, and distributes sales prices must insist, as the price of carrying on this service, that members report all sales or none, and that the transactions reported are those which have been closed in good faith. Selection of reports to create a favorable impression on the uninformed convicts the procedure of a guilty purpose.

In compiling price statistics, a simple average of all reported prices is open to the same objection as a simple average of percentages of capacity previously explained. It makes no distinction between the price on 10,000 tons shipped by a large mill and that on 1,000 tons shipped by a small mill. A better way to secure a good average price is to weigh each price by the amount shipped at that price, dividing the sum of the totals thus secured by the total shipments to get a weighted price for the industry.

The average price, although it is a weighted composite for the entire industry, may not be the price received by any one concern. Thus, particularly when individual prices are apt to vary, a range of prices is more useful than an average price. With such a range tabulated—that is, the amount shipped at 10 to 11 cents, that from 12 to 13 cents, etc.—each firm can see the exact working of the price level. There has also been a tendency to misuse average prices in cost accounting. The primary purpose in compiling average-cost data is to encourage a study of individual costs, but too often there is a reverse effect, the manufacturer using average costs for the industry to arrive at a sales figure for his products instead of accurately computing his actual costs.

PUBLICITY

Distribution of the compilation should be made promptly, not only to the members of the association but to all persons interested, including trade papers and Government agencies, so that adequate publicity may be obtained. The association will thus put its statistical activities in the open, instead of being under suspicion of secret exchange of information. The relation between publicity of statistical service and evident good faith in the event that an unlawful agreement is sought to be inferred is a factor not to be hastily dismissed.

Most associations place on their mailing lists for these reports such outsiders as request their figures. As the members of the association

bear the expense of compiling the data, it has generally been recognized, in discussions of distribution of statistical information, that trade associations may be reimbursed for the expense entailed in the distribution outside of their membership. If any charge is made for distribution, it would seem to be the better policy to keep the charge as close as possible to the reimbursement of actual cost. Any penalty upon nonmember circulation tends to counteract the purpose for which the service is conducted.

The first idea of the association member may very well be that the value of the information should be enjoyed only by those who belong to the association. But a second thought will show that this view is so shortsighted that it helps defeat the purpose of the statistical service. The idea of this service is that the information will enable the man who uses it to act intelligently. That is to say, he is protected against acting in ignorance of market conditions. Manifestly, it is not enough that one man or a part of those whose actions create a market can act intelligently. Their market is liable to a constant disturbance through decisions made in ignorance of market conditions. It is quite as necessary to the stability of a market that nonmembers of the association trading in it be informed as to its governing conditions as that members should know them. And since it is the stability of the market which is the prime interest of all concerned, it would seem to be the proper spirit of statistical service to secure as wide a circulation and use throughout the trade as possible.

This broader conception of the purpose of statistical service also includes the buyer. The relation between any seller and any buyer is a reflection of market conditions and fluctuates with those conditions. What the buyer thinks those conditions are governs his actions. If he knows what they really are, he buys in confidence, steadily and continuously, tending to avoid both long and short dealings.

More general planning of purchases according to statistics will provide a more evenly balanced sales and production schedule and will minimize both the big booms and the troughs of depression, so that a manufacturer may run his plant more evenly without having to increase his capacity for a temporary peak load and then keep it idle. Balanced purchasing through statistical information thus tends to eliminate both the big profits and the big losses on both sides, it tends to stability of production and limitation of capacity to actual needs, it tends to lessen the expenses of both buyer and seller and thus reduce costs to the ultimate consumer, and it tends to show the high-cost producer the true situation in time to retire intact before having to dump distress goods on the market. The fact that almost all industries of any consequence now publish their totals should dispel

the fear that the figures are more advantageous to the buyer. Furthermore, if conditions are bad in any industry, the news frequently leaks out and is usually exaggerated through unfounded rumors. If the actual facts were available, these rumors would be held within bounds and the industry would be benefited rather than hurt. Refusal to publish figures is taken by buyers to mean a bad condition, and the sellers are damaged much worse than by the actual facts.

MODE OF PRESENTATION

Many associations send their compilations to their members without any comment at all, while others go into explanations not only of their particular figures but of market conditions, and some, like the National Lumber Manufacturers' Association, present a compendium of available current statistics relating to their industries from all possible sources. Owing to the frequent occurrence of special circumstances, such as seasonal changes, labor troubles, and other extraneous causes, which might not be grasped at first glance by executives unfamiliar with statistical practice, some explanation of these causes may often be a great help to the members in properly weighing the importance of the information. On the other hand, interpretation should not indicate a desirable trend of action, much less urge the adoption of any common course, as explained on page 49.

To be of the most value, the presentation should include, if possible, the preceding months of the year and the corresponding months of the previous year, with cumulative totals for each period. Where the reports are of too detailed a nature to permit such comparisons, at least the previous month and the corresponding month of the previous year can be given. It is often a help to the executive to have calculated the percentage changes from both these periods, as well as on the cumulative totals. Many associations calculate for each firm its percentage of the association totals and of the association capacity, and insert these percentages on that member's report, so that each executive may see his own firm's progress relative to the industry as a whole. The National Association of Steel Furniture Manufacturers, the Label Manufacturers' National Association, and the Bureau of Envelope Manufacturers of America are among those calculating their members' percentages in this manner.

Often the trends of the industry can best be compared by means of relative numbers, by letting the monthly average of some year or period of years equal 100 and dividing that average into each monthly figure. Especially when different products are reported on the association's forms, the relative trend of each can be compared over a long period of time when expressed as relative to a base period of fairly normal activity. These relative numbers may also be ad-

justed to allow for regular seasonal variations or long-time growth of the industry by means of technical methods, for which it is advisable to secure the services of a trained statistician. The National Machine Tool Builders' Association, the United Typothetæ of America, the Rope Paper Sack Manufacturers' Association, the Association of Wood Turners, and the Motor and Accessory Manufacturers' Association all present their reports as relative to some particular period.

In many industries it is advisable to reduce production and shipment figures to daily averages so that each month's operations may be compared on the same basis. The occurrence of a holiday or an additional Sunday in a month will make a difference of about 4 per cent in the month's working time, and by reducing the figures to daily averages by the number of actual working days in the month a correct comparative set of figures can be secured. This method has proved extremely valuable in the combined production index of the Department of Commerce, and when charted on this basis the index has a very smooth curve, without the many small ups and downs that often occur without this adjustment and which make it difficult to see the real trend. The steel-ingot reports of the American Iron and Steel Institute, reduced to a daily average, exhibit the same principles.

GRAPHIC CHARTS

A further aid to the correct presentation of the figures is the graphic chart. The chart tells the whole story at a glance, and to many busy executives will show the situation in a minute, while the figures themselves can be passed on to experts for analysis. The charts should be as simple as possible. It is not necessary to chart all the details on the report, but merely the outstanding factors. The fewer details given on the chart, the more room there will be for each firm to plot its own figures against the grand totals of the industry. It may be more convenient for this purpose to have relative numbers rather than the absolute figures plotted on the chart, so that any firm's figures may be reduced to the same relative basis as the industry as a whole.

Many persons who can not make out the meaning of statistical tables can understand charts; yet any but the most simple charts are apt to be misunderstood by many readers. Especial care should be taken that scales and relationships are properly made, and here again expert advice is desirable to make sure that the presentation will not be misleading. Simple bar charts to compare volumes, or line charts to show trends, are generally the best for ordinary use. The lines should stand out clearly and the rulings should be only frequent enough to aid the eye in reading the plotted points. Too many

rulings will make the actual curves harder to follow than where the curves are set off against a larger field of white background.

Line charts are used regularly by the News Print Service Bureau, the American Face Brick Association, the American Washing Machine Manufacturers' Association, the National Alliance of Furniture Manufacturers, and the Hydraulic Society. A form of bar chart called a barometer, showing the relation of the various items to the corresponding month of the previous year is used by the Maple Flooring Manufacturers' Association, while the National Lumber Manufacturers' Association uses a similar barometer but relates all the items to current production. A combination of line and bar charts is used by the National Machine Tool Builders' Association, while the Life Insurance Sales Research Bureau adds a map to its line and bar charts to portray the geographical trends.

The preliminary report of the committee on statistics of the American Trade Association Executives contains the following recommendations for standard charts:

Standard sizes of charts.—The committee recommends a discussion of the possibility of standardizing over-all chart sizes. The committee recommends that the minimum size of charts should be the letter-sheet size—8½ by 11 inches. As to larger charts, two standard methods may be followed. One is that larger charts be multiples of the 8½ by 11 inch size, so that the over-all sizes of the series would be 8½ by 11, 11 by 17, 17 by 22, etc. Thus the larger sizes would all fold down to the letter-sheet size by progressive folding in half.

Another method, applicable particularly to charts of long-time series, is that allowance be made for a binding margin in the larger sizes, so that, while retaining 8½ by 11 inches as the minimum, the next size would be 11 by 15½ inches, and for longer charts 11 by 22½, 11 by 29½, etc. This method would permit the binding of any charts extending over long periods so as to permit their being unfolded without being taken out of the binder and without cutting away any of the binding margin.

Standard size for chart fields.—Taking the minimum sheet of 11 by 8½ inches and leaving 1½-inch binding margin at the left, with 1-inch margins at the top and bottom and 1-inch margin at the right, would give a chart field 9 inches high by 6 inches wide. We recommend that this be the basic chart-field size. This size provides a liberal margin at the right-hand side to overcome the tendency to extend the lettering to a point at the left where it is difficult to read on account of the binding. The 10-year data charts by months would then take a field 9 inches high by 12 inches wide, which would fit with ample margin a sheet either 11 by 17 inches, exactly double the letter size, or a sheet 11 by 15½ inches, which allows folding in a binder with the least inconvenience.

Standardizing vertical rulings.—The most common association statistics deal with monthly data, 12 of which constitute the major ruling unit separating each year. There is no particular reason why years should be shown in inches, but there are several reasons for showing months in convenient space. One-twelfth of an inch distance between monthly verticals is almost too small a space to commend itself for general use. We therefore recommend that in

time charts the vertical space be divided in tenths of an inch, which would make the year spacing 1.2 inches. Leaving an extra wide margin on the right-hand side of the chart makes the chart presentable. But, if necessary, this wide margin would be invaded or even if it were not filled up the most rigid waste eliminator would not begrudge the white space that gives good opportunity for explanatory lettering.

Standard scales of enlargement or reduction.—With chart fields standardized as above the committee believes that scales of enlargement or reduction should likewise be standardized. For reductions the committee recommends scales of one-half, one-third, and one-fourth, and for enlargement the committee recommends scales of two, three, and four times. If a chart is drawn on a standard chart form and the scale of reduction or enlargement from the standard size is specified in the reproduction of the chart, the relation to other charts could be easily visualized.

Another reason for adopting the above standard scales is that in the reproduction of a logarithmic curve the above reductions would automatically show the curve of the square, cube, and fourth roots of a given series, while enlargements as above would automatically show the corresponding square, cube, and fourth power, measured in a vertical direction in each case.

In addition to the familiar arithmetic chart the logarithmic or ratio chart has come into vogue rapidly as showing a truer comparison of the rate of change, since these charts indicate by the slope of their curves the percentage difference rather than the absolute difference. They are particularly advantageous for comparing data measured in different units, or data whose curves are far apart on the scale. The above committee, although referring to the saying that "the greatest trouble with logarithmic charts is that many people stumble over the log and fail to see the rhythm," advocates the promotion of its use owing to its many advantages for analysis and comparison over arithmetic charts. The committee recommends standard deck ruling of 9-inch height for one deck, 4½ inches each for two decks, and 3 inches each for three decks, the latter ruling being preferable, owing to the need usually found for three decks. Logarithmic charts are now being used regularly by the Label Manufacturers' National Association, the National Association of Steel Furniture Manufacturers, and the National Automobile Chamber of Commerce.

Standard colors and shading, applicable mainly to maps and bar charts indicating a division of the data into percentage groups, have been worked out by a committee of the National Distribution Conference held under the auspices of the Chamber of Commerce of the United States in Washington in January, 1926. These standards are presented in the report of Committee III of that conference, the committee dealing with market analysis and advertising. The committee on statistics of the American Trade Association Executives is also studying standard types of lines to represent certain items, such as a certain symbol for production and another for stocks. No definite conclusions have yet been adopted.

The American Society of Mechanical Engineers is sponsoring the standardization of graphic presentation under the procedure of the American Engineering Standards Committee, and several trade association executives are represented on its committees.

IMPROVING THE REPORTS

Once an association report is established it should not be allowed to lapse into a pure routine. Improvements can be made in most reports from time to time, and the association secretary can greatly enhance the value of the service by being on the lookout for improvements along the following lines:

1. Reports from more concerns.
2. Regular instead of spasmodic reports.
3. Earlier reports.
4. Reports on additional items.
5. Reports on related industries, in cooperation with their associations to reciprocate in furnishing similar information.
6. Classification of terms, to compare with other reports.
7. Methods of utilizing the results.

Reports should not be changed too often or comparability may be destroyed. On the other hand, frequent discussion of the value of the reports with individual members may not only secure earlier and more regular returns but may also give the association secretary ideas on how the members use the reports and how they might be improved in practical application. A campaign of education of trade association members in the uses of statistical data should not only make the reports of greater value to the members themselves, but might well result in a more appreciative interest in this phase of association work and in the secretary's receiving valuable suggestions which previously lay dormant because of lack of knowledge of the application of the statistics to the problems in hand. The Department of Commerce has in preparation a handbook on current business statistics, in which the various uses of each item usually found in trade association reports will be explained in detail, based on the experiences of many business concerns and associations.

JOINT COLLECTION WITH CENSUS BUREAU

In some industries the members of an association, taken as a whole, are not representative of the industry, and, with the rest of the industry aloof, statistical data would not show true conditions. To meet such situations the Department of Commerce, through the Bureau of the Census, has offered its facilities to obtain complete figures for the industry concerned. If a sufficient number of firms

outside the association agree to send their figures regularly and promptly to the Bureau of the Census, the bureau will combine into a comprehensive total these data and the figures supplied by the association for its members. A tabulation covering these grand totals is issued promptly each month. The outside firms agreeing to report this information must be sufficient in number so that no individual's report may be disclosed and sufficient in their total importance to justify the additional work involved. At the present time the Bureau of the Census is combining association reports with those of nonmember firms in nine different industries covered by the following associations: National Automobile Chamber of Commerce (automobiles), Paperboard Industries Association (box board), Enameled Sanitary Ware Manufacturers' Association (enameled sanitary ware), Steel Founders' Society (steel castings), Central Fabricators' Association (fabricated structural steel), American Erectors' Association (fabricated steel plate), Associated Tile Manufacturers (floor and wall tile), and the Sheet Metal Ware Association (sheet metal ware).

In many industries where no organization is available to collect statistics, the Bureau of the Census has gathered data for the entire industry. In some cases this collection has been placed upon the bureau by law, as, for example, in the cotton, tobacco, and leather industries, but in most cases it has been the result of requests by representative firms in an industry, through either an association or a special committee, for current data which could not be obtained from other sources. In order to start such statistics for an industry, the bureau must be assured of participation in the reports by at least 50 per cent of the industry, based on output. With this nucleus of the industry in agreement on the data desired and pledging themselves to report regularly and promptly each month, the bureau is in a position to circularize the entire industry to obtain additional reports. All individual reports are made in strict confidence to the Bureau of the Census and are examined only by sworn employees of that bureau. Only the grand totals of all reporting firms are published in the tabulated statements. Outside the reports made in combination with trade association figures, as mentioned in the previous paragraph, the Bureau of the Census is collecting directly from the individual firms, at monthly or quarterly periods, statistics on 28 industries. The trade associations covering the particular fields have been of great assistance in supplying lists of producers, in securing agreements to report, and in making suggestions as to the information to be supplied on the blanks. In this manner many industries now have available current statistics on their business which would not otherwise be possible. In some cases requests to the Census

Bureau which would have involved the collection of data for several thousand firms in a widely diffused industry have had to be laid aside, owing to the large amount of work involved.

MEETING OBJECTIONS TO REPORTING

A considerable problem to be faced in a large association is the indifferent or even hostile attitude of many firms toward statistics. Some of the most frequent objections to statistical work are listed below, together with the replies which have been made to them:

1. *The possibility of disclosure of individual data to others*—The methods of obtaining secrecy of individual reports have been outlined elsewhere in this chapter. In reporting to the Bureau of the Census, as mentioned above, a heavy penalty is provided by law against disclosure of individual operations.

2. *Too much trouble involved.*—If the forms are made out in a simple manner, with the month and firm name or code already filled in and a self-addressed envelope provided, it takes only a minute or two for a clerk to copy the figures from the firm's records.

3. *Multiplicity of reports.*—Although most of the larger firms have many demands made upon them for all sorts of data, an investigation by the Bureau of the Census of the reports which large firms throughout the country have to make shows almost no duplication, and little chance of cutting down the number of regular reports without sacrificing information which the same industry greatly desires. The compilation of current reports rarely causes any trouble, because the reports are simple and regular. The complaint against the multiplicity of reports is usually directed against the different requirements of various States for reports on the same subject and against the many miscellaneous inquiries for special data.

4. *Questionable legality.*—The matter of association statistical activity has been much clarified by the decision of the United States Supreme Court, rendered in June, 1925, in the maple flooring and cement cases. A careful study of these opinions will reveal the highest court's pronouncement on the legality of statistical activity. This matter is discussed in Chapter IV.

5. *Publication of the totals may disclose individual operations.*—If the figures are compiled with due care that no data are presented wherein only one or two firms contribute figures or wherein even several small firms added together would not change materially the totals of one large firm, there should be no valid complaint on this score. The Bureau of the Census makes it a regular rule not to publish separately any data for which less than three reports are received.

6. *Plant too small to affect the totals.*—Although any one plant's operations may be so small as not to have any effect on the combined total, if all the small producers maintained this attitude the totals might be seriously affected. Not only do the small firms in most industries make quite a showing in the aggregate, but in many cases the trend of the small firms is different from the trend of the larger firms, and thus their figures are vital to a true picture. For instance, in the fabrication of structural steel the fluctuations occur almost entirely among the larger firms, while in lumber manufacturing the fluctuations are due rather to the small firms who cut lumber when prices are high but stop work altogether when the situation is not advantageous. The reports of the National Machine Tool Builders' Association are classified by sizes of firms to show these differences in trends.

7. *Gives information to buyers to beat down prices.*—The publication of statistics will give information to the buyers, but it will be of still more benefit to the selling industry. The buyer may at times gain better prices through the use of these statistics, but at others the seller will be enabled to get a better price. This matter is discussed under "Publicity" on page 34.

8. *The statistics are of no use.*—The many uses of statistics can be explained and particular application made to the industry in question. Often an official may think that a certain set of statistics is of no value, and yet another department of the firm may have written the Government asking for the identical information.

9. *Records not available.*—In many cases, where a firm does not have accurate records, a close estimate will be sufficient. However, figures taken from records are more accurate and the advantages of keeping such records, not only for purposes of compiling the industry reports but for the firm's own guidance, could be explained.

10. *Unable to decide about reports.*—This is usually only an excuse to put off the question, since there is practically no expense involved and no question of policy.

11. *Other firms may falsify figures.*—So many business data exist against which any industry's figures can be checked that such actions can often be discovered in editing the reports. Besides, data not manifestly wrong and yet incorrect, if presented by any but a large firm, would not seriously affect the total. Often mistakes occur through misunderstandings, but careful editing and checking will usually discover cases of wrong figures. In cases of doubt as to the correctness of the figures, the association secretary should immediately get in touch with the firm concerned and explain the discrepancy or question.

12. *Benefit foreign competitors.*—This usually is not a valid argument, since practically all industries give out their figures and have not suffered from foreign competition because of the practice. American industry gives out many more figures than any other country and suffers less from foreign competition. Import and export figures have always been published without any question being raised as to their aiding foreign competitors. In fact, such figures might discourage foreign competitors. Finally, the American firms have the advantage in any case, owing to their possessing the data earlier.

CHAPTER IV

LEGAL ASPECTS OF STATISTICAL ACTIVITIES

By Nelson B. Gaskill, former Chairman of the Federal Trade Commission

There is no mystery in the laws which relate to the statistical services which trade associations may render. It is not necessary to go through any prolonged course of education to understand their essentials, and no occult powers are required to interpret them. They can be reduced to a few rather simple propositions if the seeker will try to put himself in the position from which the law looks at his problem. Usually it is very different from his own point of view, which is largely concerned with his own necessities and advantages. Some forms of law, like those against murder and theft, do deal in terms that come close to individual or personal necessity or advantage. But the antitrust laws are as impersonal as the principles of mathematics. It would be of considerable advantage to somebody now and then if two and two were five, but in the long run and for everybody it would not do.

From the personal point of view this group of laws may be either an obstacle in the way of doing something which ought to be done, or a protection against the doing of something which ought not to be done. And as those who are members of trade associations are most likely to belong to the first class, it is necessary for them to understand what the purpose of the law is and why they may not do certain things.

There is no distinct or specific list of what may not be done to which one may refer, except that the decisions of the courts contain statements of fact which have been condemned or approved. These are useful because they show what may not be done, but they are most useful in showing why certain things are prohibited. To get the value out of them as a guide to conduct, one must get acquainted with the idea which is expressed in the law and which the courts apply in the cases which come before them. This idea never reaches its final statement but is constantly developing as conditions in the business world change, and in changing produce new complications. But the same idea runs throughout, needing only some disinterested and impersonal thinking to project it upon some line of action on which no court has yet passed.

In short, the antitrust laws are impersonal laws and they require an impersonal position from which to understand and apply them. It will help to do this if they can be seen as the expression of ideas and if these ideas can be very broadly traced back to their beginnings.

Hundreds of years ago men found themselves obliged to get permission from some earl or baron or from the king if they wanted to sell or trade in an open market. This freedom to trade was not a personal right. It belonged to the king or to some noble lord. And he granted it sometimes as a favor, sometimes as a means of raising revenue. It was very likely to be an exclusive grant which was called "monopoly." In its original form this grant persists in our times in the issue of a patent.

The time came when the popular demand for the free right to trade resulted in market places, market towns, and even free cities. And while the royal grant of an exclusive right to trade diminished, the idea remained in the minds of men and they began to use various means to acquire the power which formerly lay in a royal grant. It is almost an indignity to a magnificent pageant of history to write of it like this. But when the scenery is removed and the costumes are put back in storage, what remains is a conflict of ideas carrying down through the years, sometimes only dimly perceived, sometimes finding statement in laws so old that their terms are understood only by historians. The freedom to trade, as against its denial—each generation of men received the conflict of these ideas from its predecessor and wrestled with it. Each has made its contribution latterly in the form of laws. The Sherman law, the Clayton law, the law creating the Federal Trade Commission, represent our contribution.

So we can see that in the beginning the dominant idea was that the right to trade was a sovereign right which might be withheld entirely or granted exclusively. Against this, and in conflict with it, was the idea of the individual freedom to trade. The latter won, but not a complete victory. For the idea of excluding or limiting the individual freedom to trade simply passed from the person of the king to the persons who could manage by some device to accomplish the same result. The conflict of ideas was the same though the persons were different.

Our statutes of to-day are derived chiefly from the laws of old England. Here there were perceived two forms or methods which were most harmful to freedom of trade as it was then understood. One was the monopoly, the assumption of an exclusive power over a market or any industry, which was prohibited. The other was interference with supply and demand. So they prohibited the stoppage of goods on their way to market, the purchase of goods on their way to market for resale in the market, and the buying up of goods in a market. Along this second line developed generally what we know

as "restraint of trade." None of these ancestor laws asserted broadly the general doctrine of general and individual freedom to trade, but the idea is implied in every prohibition of some form or method of action which conflicts with this idea.

The Sherman law does not state the idea in positive terms any more than it attempts to prohibit all acts which interfere with the individual freedom to trade. But the idea is implied, for without it there is no reason for the prohibitions. The nearest that any law ever came to stating the idea generally is found in the Federal Trade Commission act if the scope of the underlying idea is to be inferred from the all-inclusive prohibition of all unfair methods of competition. But if that was the purpose, it was not expressed with sufficient clarity, for the United States Supreme Court has held that the act is not so broad.

What the Sherman law did to this age-old conflict of ideas was very simple. It drew a line between any invasion of the individual freedom to trade which might be caused by a single individual or corporation, or any interference with conditions of supply and demand which any single individual or corporation might cause, and the same result when it was produced by two or more individuals or corporations working in agreement. The latter it prohibited, and this was interpreted to mean, when unreasonable. This simply means that the individual freedom to trade seems to be most seriously threatened when a number of men join hands either to curtail their own freedom or, by their united strength, to curtail the freedom of someone else.

What we are dealing with, then, in the antitrust laws is not the prohibition of all interferences with the individual or unit freedom to trade or with conditions of supply and demand, but with some of them only. With exception in favor of the specific declarations of the Clayton law, these prohibitions relate to agreement.

As agreement is the essence of a contract, combination, or conspiracy—the other terms used in the Sherman law—for all practical purposes the trade association member or officer need only think of this law in terms of agreement. He can forget all about contract, combination, and conspiracy. These are only forms or evidences of agreement.

Men seldom to-day express an unlawful agreement in form. But a set form is not necessary. An agreement may be and frequently is inferred from a series of letters or bulletins or from a course of conduct. But the inference must be a necessary and practically unavoidable deduction from the facts. The conduct must clearly point to a common understanding of a common purpose or a concert of action to carry out a common purpose. Of course, when there

is actual proof of an agreement, so that its existence need not be inferred or deduced, any act to consummate it closes the circuit.

But it is very far from being true that every agreement or concert of action, in a trade association or out of it, is unlawful. The very fact of the existence of a trade association indicates the existence of an agreement and that is why such an association must take care that nothing unlawful is done by it. For such an unlawful act will attach to the association agreement and make it completely unlawful. For this reason it is highly necessary that the trade association understand what it can lawfully do. Generally speaking, it can regulate the conduct of its members. It must not restrain their necessary freedom of action. But it must be very careful as to how it attempts to regulate or restrain the conduct of others.

A proposition which the United States Supreme Court has labored to make plain to the general public is the distinction which it makes and is always ready to make between a regulation of trade and a restraint or a restriction of trade. It is of the highest importance that the import of this distinction should find lodgment in the mind of the trade association official. Two illustrations will possibly help to make this point clear.

The right to vote belongs to the qualified individual as a citizen of the United States. But he may not vote wherever he pleases. He must obtain a status as a registered voter in a particular election district in a specific municipality in a certain State. The conditions of this registration are within control of the State, subject only to revision by the United States if the conditions are unreasonable.

The imposition of such conditions as are essential to the proper casting of the ballot, even though an otherwise qualified voter may lose his opportunity to vote through noncompliance with these conditions, is a regulation of the voting process and not a restraint or a restriction upon the right to vote. But when the conditions imposed are unreasonable, as when some of the States permitted only those to vote whose grandfathers had been entitled to vote, the condition was held to be a restriction of the constitutional right.

Again we may think of a river running through undeveloped country. At times it spreads out over lowlands and fills up swamps until in due course the flood abates and a time of drought comes. The stream dwindles, the adjoining country dries out, but no one is harmed because no one is there. But settlers come in and clear the land, till the fields, and float their produce to market on the stream. The struggle to control the flood commences. Levees must be constructed and the stream confined by these artificial banks. The flood waters must be captured and stored to fill the stream during the

dry season. Dams are constructed and the overflow is artificially restrained to an even flow. There rises a need for power, and once more dams go up, with locks for vessels to pass through. The stream is checked a little. All these interferences with the natural flow of the river are regulations of the stream made necessary by the ever-increasing complexity of the conditions of life along its banks. But they are not restraints or restrictions upon its use as a river.

If, however, the water is impounded and diverted so that the flow of the stream is materially diminished, its usefulness as a river is restricted—which is a wholly different matter.

So the question which the association member must ask and must answer before he enters into agreement with his fellows is not so very difficult if he will back off far enough to get a perspective. Will this action make each of us a more useful, better informed, more capable, and still free unit of our industry, or will it deprive or lessen the individual's freedom of expression of judgment and effort? And, again, will it leave those with whom we deal equally free? For there are two parties to be considered—those who make the agreement and those upon whom it operates.

There is not only an opportunity for the trade association here; there is a duty as well. Some groups of business men are all too prone to ignore the law, measuring their chance of gain against the chance of detection and punishment, while others stand too much in fear of the law. It is a long, long way from the rule of the hardwood lumber case to the cement and maple flooring cases, and the present position would never have been reached if some men who believed they were right but could not be sure they were right until the courts had spoken, had not been willing to walk the intervening distance. The fight for the legality of statistical service has been won. But there is another step to be taken.

The law does not attempt to regulate business practices or business conduct except in minor particulars. It confines itself to restricting the diminution of an otherwise unlimited scope of initiative and action. The business of regulation pertains with peculiar fitness to the trade association as a medium of self-government. The extent to which this process may go and the direction it may take seems to be already outlined.

SELF-REGULATION THROUGH ASSOCIATIONS

The basis of this self-imposed regulation is agreement on a stated principle of action rather than on a specific form of action. The agreement must be free from coercion, constraint, or undue pressure of any kind. It must be an uncontrolled assent freely given. This

implies the slow process of education, the strongest element in which is the force of example. The man who believes in a proposition which he wants others to adopt should be willing to prove it. Others will believe his works if they doubt his words.

This process of voluntary self-regulation has already gone far. Its official sanction had its beginning in the Trade Practice Submittals instituted by the Federal Trade Commission, in which the agreement of the industry is supervised by the commission. There is no authority for this practice in the law, and in last analysis the legal standing of such an agreement must depend upon its quality as a regulation of commerce rather than a restriction upon it. This procedure has been carried to far greater lengths and has developed a far greater usefulness through the work of the division of simplified practice of the Department of Commerce. Here, again, the official contact has no legal authority from which the resultant agreement derives any final sanctity. But this is as clearly a regulatory process and not a restriction as is the agreement of the paint and varnish manufacturers' associations upon the proper use of the terms "shellac" and "shellac compound." A conspicuous example of this process without official sanction is the creation and successful operation of a number of nonjudicial bureaus or committees for the adjustment of trade disputes. Here the whole matter of jurisdiction and authority rests in agreement.

This field must broaden its scope and draw nearer and nearer to the complexities which confuse the lawmaker, because only by this method can governmental intervention be avoided in the regulation of commerce, which the ever-increasing complexity of life demands. Whatever it may need in the way of police support or even cooperation from governmental sources will be developed in due course and can be more readily fitted to an ascertained need than to an anticipation.

The matter of statistical service is most emphatically a phase in this field of voluntary self-regulation.

THE MAPLE FLOORING DECISION

It does not seem necessary to restate the details of the earlier decisions in the suits against the Hardwood Lumber Manufacturers' Association and the linseed oil group. While these should be studied for the light they throw upon the general subject of trade association activities, the element of statistical service was so inextricably interwoven with other elements that these cases are not true precedents by which to determine the legality of statistical service standing alone. This came later.

The charter of freedom which statistical service enjoys is found in the opinion of Mr. Justice Stone, speaking for the majority of the Supreme Court in the Maple Flooring Manufacturers' Association case, decided in June, 1925. Here are also to be found the principles of distinction between the practices of this group, which were sustained, and those shown by the Hardwood Lumber Manufacturers' Association and the linseed oil group, which were declared illegal in 1921.

In reading this case, as well as the opinion in the cement case, decided at the same time, it must be remembered that the rule of law does not vary. The same controlling principle is the standard of judicial action in each of the four cases. No new rule of law has been announced and no old rule has been rescinded. The results vary in the cases because what the associations did was different in the last two cases. Some members of the court saw no difference.

All that has happened, then, is that certain courses of conduct are distinguishable from other courses, and there is no reason to assume that what was formerly prohibited would not, under the rule of law, in the last two cases, be as certainly condemned if that conduct were repeated.

The following paragraph from the Maple Flooring case should be carefully studied and analyzed until its meaning and implications are thoroughly understood. It contains the essential principles but it takes a bit of analysis and study to comprehend its meaning. For this purpose some words have been thrown into italics and some numerals and letters have been inserted in brackets.

> We realize that such information [production cost, transportation cost, volume of production, surplus stock, unidentified past sale prices] gathered and disseminated among the members of a trade or business [read carefully in the fore part of this opinion the methods of dissemination and publicity which were before the court, for no other method was here approved] may be the basis of [1] agreement or [2] concerted action to [*a*] lessen production arbitrarily or [*b*] to raise prices beyond the levels of production and prices which would prevail if no such agreement was made or concerted action ensued, *and those engaged in commerce were left free to base individual initiative on full information of the essential elements of their business. Such concerted action constitutes a restraint of commerce and is illegal and may be enjoined as may any other combination or activity necessarily resulting in such concerted action as was the subject of consideration in American Column & Lumber Co.* v. *United States and United States* v. *American Linseed Oil Co.* But in the absence of proof of [1] such agreement or [2] concerted action having been actually reached or [3] actually attempted [i. e., to lessen production arbitrarily or to raise prices beyond, etc.; see first sentence of paragraph] *under the present plan of operation of defendants, we can find no basis* in the gathering and dissemination of such information by them or in their activities under their present organization *for the inference that such concerted action will necessarily* result within the rule laid down in those cases.

The significant point of this statement is the clear definition of the standard of legal economics which the courts will apply in considering any issue rising out of agreement or concerted action. And he that runs may read. Production must not be lessened nor prices raised except as they are done by the individual, guided by his own judgment and acting on his own initiative, after he has been given, in common with all others, including the public, full information of the essential elements of his business. This is simply a method of saying that the individual rate of production and the individual price are necessary elements of the individual freedom of trade. It is misleading, however, to limit this statement to curtailment of production or enhancement of prices. In a subsequent paragraph it is made clear that these are merely two forms or appearances of result due to a lessening of individual freedom in trade, and any other effects due to like causes will unquestionably be included where they come in due form before the court.

If the question had been raised, there can be little doubt that the court would have added to the lessening of production or raising of prices, the maintenance of an existing price, or the stabilizing of price offers, by the same or similar means. It may very well be that, in cases where a prime cost is fixed and a standard margin for profit added, by agreement or concerted action, maintenance of the standard margins by such means would have been included in the decision as illegal. The court decided only what was before it, but the standard of judgment stated is capable of extension to any state of facts.

By careful repetition the opinion shows that either one of two processes must appear to have contributed to the situation. There must appear to have been an agreement or a concerted action to produce the unlawful result.

An agreement is a state of mind; a written contract is evidence of it. Letters may be sufficient; association resolutions, bulletins, and communications may show it. An agreement will always be inferred from a manifest concert of action, so that an agreement may be proved by direct evidence or it may be inferred from a course of action. In this case the court found no proof of an agreement either to curtail production or to raise prices. The question was whether an agreement was to be inferred from all the facts. No one can agree with others to lessen his own freedom in trade or agree to lessen that freedom in others, unreasonably—that is, restriction as against regulation.

A concerted action is merely a picture of a number of men with a common purpose moving, it may be, each by himself, to accomplish a common object. The test of legality is the same for an agreement and concerted action. Agreement to use lawful means to

a lawful objective meets no criticism. But agreement and concert of action are equally unlawful if the means adopted are unlawful or if lawful means are adopted to an unlawful end. And the attempt to bring about an unlawful concert of action is equally objectionable.

This decision says that the court looked for direct proof of an agreement and did not find it. As a matter of fact, the Government did not charge that it existed. Neither were the facts such that they gave rise to a necessary inference that there was such an agreement. So agreement passed out of this case. There was undoubtedly a concerted action. The Government charged that the necessary consequence was a restraint upon the individual freedom of competitive effort. There was no direct proof of any effect on production or prices adverse to consumers in support of this contention. The majority of the court found that the inference sought to be attached to the particularly identified activities of this association was not necessary. The inference of guilt must approach an unavoidable conclusion.

> We decide only that trade associations or combinations of persons or corporations which *openly and fairly gather and disseminate* information as to the *cost of their products, the volume of production, the actual price which the product has brought in past transactions,* stocks of merchandise on hand, approximate cost of transportation from the principal points of shipment to the points of consumption, *as did these defendants and who, as they did,* meet and discuss such information and statistics *without however reaching or attempting to reach any agreement or any concerted action with respect to prices or production* or restraining competition, do not thereby engage in unlawful restraint of commerce.

The only phrase in that sentence which might possibly need interpretation is "or restraining competition." This is the sentence referred to above which indicates that the law is not confined to curtailment of production and enhancement of price. Due significance should be given to the words in italics. And all uncertainty as to its meaning will vanish if one picks up the language of the other preceding paragraph quoted above. The statement will then read:

> Without, however, reaching or attempting to reach any agreement or any concerted action with respect to prices or production, or *which restricts the freedom of those engaged in commerce to base individual initiative on full information of the essential elements of their business,* do not thereby engage in unlawful restraint of commerce.

With this statement this presentation may well close. The uncertainties which made this chapter in the former edition largely a matter of opinion and argument have disappeared. The guiding principle has now been stated; it needs only to be understood and applied.

The purpose of this discussion has been to show that the service of statistical information as to production costs, volume of production, stocks, sales, and selling prices can be conducted in a lawful manner and for a lawful purpose. This service is equally capable of misuse for unlawful purposes. Experience shows that both methods of treatment have been employed. The character of the service, its intent, and the use to which it is put depends upon the spirit of the members of the association projected through the agency which they create. The level of association action will be what its members determine.

An effort has been made here to explain the principles underlying the law and the judicial decisions so as to show the reasons for the opposition of the law and the attitude of the administrative agents of the law to certain tendencies, to movements in this or that direction. It is not enough to read a reported case for its facts. It must be analyzed for its controlling principles. Of course the decided facts show an approved pattern which others may follow. But since no one of these cases can possibly include all the variations of needs and purposes which may be expressed in action, no one decision states all the law. To accept a particular pattern as the limit of legal sanction is to stand still, and the trade association must not stand still. To advance within the law requires that the guidance of association action must be founded on a perception of a controlling principle which may, by honestly logical processes, be extended to new states of fact. So progress may be made toward the self-regulation of commerce.

CHAPTER V

COST ACCOUNTING

The development of uniform cost accounting in any industry requires self-education of the industry as to the importance of the subject and also sound accounting technique. The problem of self-education is the more difficult of the two. Yet, in previous times, in introducing uniform cost accounting the educational groundwork has been greatly neglected. Where associations have undertaken to rush into action by naming committees to bring in a report embodying their own notions of what a cost-accounting system should be, or by employing an outside cost accountant or firm of auditors for a short survey, the results have not been satisfactory.

The importance of demonstrating the need for uniform methods of cost figuring is illustrated by Robert E. Belt, secretary of the American Malleable Castings Association:

> The conditions that were found to exist in the malleable-iron industry prior to an effort to standardize cost-accounting methods are typical of conditions in other branches where no special cost educational efforts have been made. About four years ago in this industry a test was made of the competitive conditions which resulted where concerns were either using different accounting methods or guessing at their costs. Two castings each were furnished 43 different foundries which were asked to quote on an inquiry for 10,000 pieces of each pattern and to give their total estimated cost of production. With the actual castings before them, one would not expect any great variation in estimated cost; but here is the result of the inquiry. Of the 43 cost estimates on the one casting, about one-half showed a fairly narrow range—from about 7½ to 8¼ cents per pound. Those were the foundries that were in a position to prepare an estimate from their cost records on some more or less accurate basis. The variation in the estimated costs of these particular twenty-odd foundries did not cause any special concern. It was the other half of the companies, barring a few unreasonably high estimates, which were the ones that were crippling the industry through the establishment of a price which precluded anyone from getting business at living price.
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> As compared with a fair cost of the work at that time of about 8 cents per pound, there was one estimated cost of a fraction less than 5 cents, another at 5½ cents, and six others under 6½ cents. Excluding one abnormally high estimate, the range of the 43 cost estimates was from 4.9 cents per pound to 11.6 cents per pound.
>
> This inquiry and demonstration proved remarkably successful in convincing manufacturers who were skeptical of the need of and benefits from uniform cost-accounting methods. Everyone knew that actual differences in production costs could account for only a small part of the range in estimates.

Other associations, such as the American Paint and Varnish Manufacturers' Association, by its uniform cost accounting committee, have used this method of bringing to the notice of their members the chaos of methods of cost figuring. The International Association of Milk Dealers named a large and representative advisory committee as builders of its system. The members were brought into Chicago from all points of the compass at the expense of the association, and they carried back to their firms and to the rank and file of the membership the enthusiasm generated at the meetings. The association issued bulletins on an average of once a month, one section of which was given over to a report of the progress of the advisory committee and the special features which were brought out at each meeting.

DEFINITION

According to a pamphlet prepared by the Chamber of Commerce of the United States, uniform cost accounting comprises a set of principles, and, in some cases, of accounting methods which, when incorporated in the accounting systems of the individual members in an industry, will result in the obtaining, by the individual members of the industry, of cost figures which will be on a comparable basis. Obtaining uniform cost figures for the industry does not mean the preparation of average or standard cost figures nor the inclusion in costs of predetermined or fixed elements of cost.

Each industry has its peculiar accounting problems just as it has its peculiar problems of production and of distribution. The problems of the shipbuilder are different from those of the cotton finisher; the stove manufacturer has little in common with the pickle packer. In one industry the cost of material may require the closest cost determination; in another, overhead expenses must be most carefully accounted for. Again, in such an industry as the electrical industry the accounting problem may be concerned with the costs of thousands of small items, while in the cement or brick industries there are only a few staple products. In the chemical industry, for example, the accounting for by-products is important. So it is that each industry has its own peculiarities in cost accounting.

It is quite possible, however, in any one industry to develop cost accounting technique that will result in the figuring of costs by the members individually on a comparable basis. It will give each manufacturer in the industry assurance that all other manufacturers in the same line have included the same items in their costs; that their businesses have been departmentalized in substantially the same way; that there is a common understanding of overhead or burden; that there is a tie-up of the financial and cost records; that there is a

control of raw materials, and so on. In other words, differences in costs which are bound to exist between the members of the industry are due to differing efficiencies in management and to economic reasons, and not merely to a lack of knowledge of costs.

Uniform cost accounting is concerned solely with fundamentals. In the system of the individual manufacturer there is wide scope and latitude for originality in office methods and in accommodation to peculiar accounting requirements; hence uniform cost accounting does not necessarily mean a rigid classification of accounts.[1]

INSTALLATION

Recent experience indicates that the committee plan of procedure is the soundest. The committee to-day is not the old-style committee which gave superficial attention to the subject, but instead is composed of those accountants of the industry who are the best equipped to struggle with technical problems. Quoting from the pamphlet, "The Cost Committee":[2]

> The mainspring of cost-accounting activities in a trade association is the cost accounting committee. While not all cost-accounting activities in the past have been energized by a committee that had been so denominated, in the final analysis, successful cost work has come from the efforts of some group within the industry, by whatever name called. In other words, cost accounting is carried on in the same way as any other cooperative activity within a trade association—that is, through the joint endeavor of those members of the industry whose interest is keenest and whose knowledge and experience are most valuable.
>
> *Functions.*—Broadly speaking, it may be considered to be the duty of the cost committee to make plans and to carry these plans into execution. This will include the development of the cost-accounting technique, the adoption thereof by the association, and the acceptance and use by the members. In other words, the committee is not discharged until every member of the industry has in use the plan of accounting that by mutual consent represents the most effective method of figuring costs in the industry. * * *
>
> *Size.*—There are limits within which a cost committee will function as a committee to the best advantage. Usually the number is between 5 and 10. Some committees have been made up of three members—a desirable size for the accomplishment of the greatest amount of work in a short time but hardly large enough usually to be representative of the various factors in an industry.

The cost accounting committee of the Printing Ink Cost Bureau, whose members were chosen geographically and by size of concerns, held their meetings in various sections of the country, and in those

[1] These systems range from the simple one of the Shoe Retailers' Association, sold to retail dealers at a cost of $12, to the detailed program installed in large manufacturing institutions costing proportionally more and installed by specialists in the field of cost accounting and engineering.

[2] A pamphlet of the Department of Manufacture of the Chamber of Commerce of the United States.

centers they gathered the members together, preferably at lunch, and talked over the problem. Each meeting secured new converts to the cost association.

The Rubber Association of America has a committee of accountants of the industry, supplemented by a trained accountant on the paid staff of the association giving all his time to the development of standard accounting practice and conducting the work as planned by the committee. They decided that the main accounting committee consisting of 12 members should function as an executive committee and as a final tribunal, and that through plans which this main committee set up subcommittees, not to exceed four members each, including the secretary, should carry out the plans adopted, and when they had completed standard practices their report should be presented to the main committee for final approval.

DEVELOPMENT

Experience shows that the work on the development of the cost-accounting structure must be diligently prosecuted. On the one hand, the mistake may be made of pushing the work too rapidly, and, hence, of doing a superficial job. On the other hand, delays and periods of inactivity are dangerous because the interest of the members may cool. The work of the uniform cost accounting committee of a trade association naturally, if not inevitably, results in the preparation of a manual. This manual should have a selling appeal; that is, it should present the subject of uniform cost accounting for the particular industry in a manner that will interest and convince the industrial executive and his accountants of the desirability of making use of the uniform methods. It should further serve as a comprehensive reference book on accounting procedure, and should be useful to the executive and his accountants in solving the problems of installation of the recommended uniform methods. It is a large order to fill all of those requirements acceptably, but unusual care and attention will be fully recompensed by the vastly greater interest shown by members of the industry in the use of the manual.

There comes a time, after the first step of the accounting activities has been taken, when the members of the industry are expected to adapt their cost-accounting systems to the recommended methods. It is at this stage that altogether too many industries have slackened their interest in the movement.

Some trade associations to-day have full-time trained accountants on the headquarters staff who are available for assistance in installation, for consultation, and for the supervision of cost results. For

example, the United Typothetæ of America maintains an expert accountant, with general offices at Chicago, who makes frequent trips to the field for the purpose of supervising the work of field men and checking the character and thoroughness of the installations. Supervision of the operation as well as of the installation of the system was found essential to standardization and to the maintenance of effective systems, as from 75 to 80 per cent of the systems were wont to slip away from standardization or from some essential operation after the first year because of a lack of interest on the part of the management, a change in cost clerks, alleged increase in expense, insufficient supervision, or other causes.

The News Print Service Bureau, which represents the manufacturers of newsprint paper, has a number of accountants and engineers on its staff. As an illustration of how their service operates, it was reported at the New York Conference on Uniform Cost Accounting that—

> Following the introduction of uniform cost methods came the development of operating efficiency reports. These obviously were necessary in order to explain variations reflected in the conversion costs which were exchanged through the instrumentality of the News Print Service Bureau. The effect of exchanging conversion costs, as would be expected, stimulated competition to lower costs. Wide variations between mills caused high-cost mills to question the accuracy of the conversion costs in low-cost mills. This naturally led to a further analysis of operating conditions which resulted in the development of operating efficiency records.
>
> The cost divisions in the newsprint industry are grouped about as follows:
>
> (*a*) Cost of rough wood.
> (*b*) Cost of preparing wood.
> (*c*) Cost of converting prepared wood into mechanical pulp.
> (*d*) Cost of converting prepared wood into chemical pulp.
> (*e*) Cost of manufacturing paper out of mechanical and chemical pulp.
> (*f*) Cost of finishing.
> (*g*) Cost of producing steam, water, and electric power.
>
> The comparative conversion costs which are exchanged through the News Print Service Bureau begin with prepared wood, the cost of this wood, however, not being included. These conversion costs are divided about as follows:
>
> (*a*) Cost of converting prepared wood into mechanical pulp.
> (*b*) Cost of converting prepared wood into chemical pulp.
> (*c*) Cost of converting mechanical and chemical pulp into unfinished paper.
> (*d*) Cost of finishing.
> (*e*) Cost of manufacturing steam per 1,000 pounds.
>
> In order to remove the doubt as to the accuracy of these reports expressed by mills whose conversion costs were high, it was necessary to develop records which indicated operating efficiency along the following lines:
>
> (*a*) Paper machine efficiencies which included pounds per inch of width on machines. Machine speeds, per cent of trim, time lost from various causes, broke losses, etc.

(*b*) Machine equipment statistics giving such items as tons of paper per square foot of wire surface, tons of paper produced per pound of felt, etc. (thus presenting direct comparisons which conversion cost failed to give because of the varying prices of material and labor in different parts of the country, especially between United States and Canada).

(*c*) Steam plant efficiency reports, including evaporating records, etc., made in accordance with the A. S. M. E. standard practice.

(*d*) Moisture tests in the sheet of finished paper. Since the first exchanges of these tests, the average moisture content in the sheet has risen from 7 per cent to considerably over 8 per cent, saving the newsprint industry approximately $1,000,000 per year in raw materials by stimulating competition in accomplishment.

The conversion costs, however, stimulate the greatest interest in economy of operation. One mill saved over $27,000 on wires and approximately $18,000 on machine clothing. Another reduced its wire cost 11 cents per ton, or a total of $4,000 per year.

In a mill which made a study of lubrication costs, a reduction of 50 per cent, or $2,000 per year, was made, in a study induced by higher than the average costs.

A reduction of 10 or 15 per cent has been made in steam costs, which represent about 40 per cent of the conversion cost of newsprint rolls.

R. S. Kellogg, secretary of the News Print Service Bureau, concludes from his experience that the handling of cost data by a trade association is particularly of value in exposing incorrect methods, revealing uneconomic processes, checking waste, and indicating new opportunities for reducing costs.

An instrumentality of considerable importance in getting uniform cost methods used in an industry is the organization of the cost accountants of that industry. Sometimes such an organization is known as the controllers' congress, as in the National Retail Dry Goods Association, or the controllers' council, in the International Association of Milk Dealers. In the paper industry there is the Cost Association of the Paper Industry. In the printing-ink industry it is the Printing Ink Cost Bureau. Where such organizations are set up, regular meetings are held for the exchange of views and experiences. This is an important branch of the accounting activity, especially as cost accounting is not static but, instead, is susceptible to changes and evolution in its methods.

In closing it must be noted that certain cost-accounting activities of trade associations have met with unfavorable court decisions in cases prosecuted under the Federal antitrust acts. Where cost accounting has been involved, it was not because of the technical study of cost accounting methods but because of the misuse of cost statistics. The situation has been very clearly stated by Nelson B. Gaskill, a former chairman of the Federal Trade Commission, in an exchange of correspondence (see also Chapter IV, pp. 45–54) with

E. W. McCullough, of the department of manufacture of the Chamber of Commerce of the United States:

As long as the principles of cost accounting are sound and the methods used are adapted to secure accuracy of individual results, and provided that the results are not used directly or indirectly for ulterior purposes of an illegal character, the Federal Trade Commission is in favor of the study and development of uniform cost accounting by trade associations or otherwise. * * *

Stated in another way, the conception of the commission is that the efforts of a trade association to educate the individual member in the application of sound principles of cost accounting in his individual business are proper. But that any subsequent effort of the association to reduce the individual costs to an average or uniform cost basis and to procure the use of the group standard as a basis of price making by each of the individuals in the group is improper. The individual must fix his own cost and his own margin. The group may not attempt to substitute a group average or standard, either of cost or margin, for the individual's figures without being in peril of becoming an unlawful combination.

CHAPTER VI

INDUSTRIAL AND COMMERCIAL RESEARCH

The analysis of production and distribution methods to develop more efficient and more economical practices is rapidly approaching the forefront of association activity. These activities may be roughly divided into (1) industrial or technical research and (2) commercial or economic research. Though these are distinctly different types of work, neither is exclusive of or wholly separated from the other. The relation of the trade association to the research activity of its industry or trade is threefold: (1) As the agency actually carrying on the research, (2) as an active assistant to and collaborator with the members in their independent investigations and studies, and (3) as a guiding influence encouraging the highest possible efficiency in the development of research among individual members.

INDUSTRIAL RESEARCH

Where the association is actually charged with carrying out industrial or technical analyses there are several plans which have been successfully operated:

1. Cooperation with Government laboratories through the research associate plan.
2. Arrangement with commercial laboratories through which several of the personnel are placed at the disposal of the association.
3. Establishment of fellowships and studentships in educational institutions.
4. Development of a complete laboratory owned and operated by the association.

THE RESEARCH ASSOCIATE PLAN

Since 1892 the scientific and technical research facilities of the Government have been extended, by legislative enactment, to duly qualified scientific investigators and students.

JOINT RESOLUTION OF 1892

[Supp. Rev. Stat., vol. 2, pp. 71, 72; 27 Stat. L. 395]

Resolved, That the facilities for research and investigation in the following and any other governmental collections now existing or hereafter to be established in the city of Washington for the promotion of knowledge shall be

accessible, under such rules and restrictions as the officers in charge of each collection may prescribe, subject to such authority as is now or may hereafter be permitted by law, to the scientific investigators and to students of any institution of higher education now incorporated or hereafter to be incorporated under the laws of Congress or of the District of Columbia, to wit: 1. Of the Library of Congress. 2. Of the National Museum. 3. Of the Patent Office. 4. Of the Bureau of Education. 5. Of the Bureau of Ethnology. 6. Of the Army Medical Museum. 7. Of the Department of Agriculture. 8. Of the Fish Commission. 9. Of the Botanic Garden. 10. Of the Coast and Geodetic Survey. 11. Of the Geological Survey. 12. Of the Naval Observatory.

ACTION OF 1901

[Supp. Rev. Stat., vol. 2, p. 1532; 31 Stat. L. 1010]

That facilities for study and research in the Government departments, the Library of Congress, the National Museum, the Zoological Park, the Bureau of Ethnology, the Fish Commission, the Botanic Garden, and similar institutions hereafter established shall be afforded to scientific investigators and to duly qualified individuals, students, and graduates of institutions of learning in the several States and Territories, as well as in the District of Columbia, under such rules and restrictions as the heads of the departments and bureaus mentioned may prescribe.

There are to-day 61 research associates in the Bureau of Standards, and the number is growing. These associates are usually technical or scientific graduates, qualified to initiate and conduct research, employed by an association or a specialized scientific or technical group.

When appointed the research associate is subject to the same rules and regulations as the personnel of the bureau and enjoys most of the rights and privileges which members of the bureau staff enjoy. He may attend the staff meetings and may consult specialists in pertinent fields of work on technical aspects of his research program. Each month a progress report is made to the supporting association through the director. Manuscripts prepared for publication are submitted through the chief of the division to the bureau editorial committee and are handled exactly as other bureau publications, except that the manuscript is also submitted to the supporting industry for comment. The research results are immediately available to the industry concerned and are printed in bureau publications or elsewhere.

The advantages of this plan are twofold—(1) the industry instituting research has at its disposal for consultation the bureau's staff of experts and (2) utilization of unusual equipment, shops, and specialized laboratories. Research requiring some additional equipment may necessitate outside contracts at the expense of the sustaining organizations. The following tabulation lists the associations now utilizing the facilities of the Bureau of Standards through

the associate plan, with indication of the type of research and the number of associates.

Organization	Number of associates	Specific project
American Bureau of Welding	1	Research on welded rail joints.
American Face Brick Association	1	Prevention of efflorescence on brick walls.
American Gas Association	1	Methods of testing gas appliances to determine their safety.
American Society of Mechanical Engineers.	2	Properties of steam.
American Society for Testing Materials	2	Correlation of data on cement tests.
Associated Knit Underwear Manufacturers of America.	1	Standardization and simplification of underwear sizes.
Common Brick Manufacturers Association of America.	1	Specifications for brick.
Copper and Brass Research Association	1	Investigation of safe loading of corrugated copper roofing, etc.
Elevator Safety Code Committee	1	Elevator safety equipment; development of instruments and methods; construction, maintenance, operation, etc.
Gypsum industries	1	Investigation of acoustic properties of building materials.
Hollow Building Tile Association	2	Fire resistance of hollow clay tile.
Horological Institute of America	1	Certification of watchmakers.
Indiana Limestone Quarrymen's Association.	1	Properties of Indiana limestone, including waterproofing, discoloration, etc.
International Association of Electrotypers.	1	Nickel electrotyping.
National Association of Dyers and Cleaners.	3	Cleaning weighted silk as affected by cleaning solvents and perspiration, and general cleaning and dyeing problems.
National Association of Hosiery and Underwear Manufacturers.	1	Moisture content of carded and combed yarns; standardization of twist with respect to dye application.
National Association of Marble Dealers	1	Use and care of marble for interior installations.
National Glue Manufacturers Association.	1	Glue for use in paper sizing.
National Lime Association	2	Investigation of acoustical properties of building materials. Development of quick-setting lime plaster.
National Research Council	1	Beta ray velocities.
National Safe Walk Way Surfaces Code Committee, American Engineering Standards Committee.	1	Coefficients of friction of walk-way surfaces.
National Terra Cotta Society	2	Investigation of architectural terra cotta.
Portland Cement Association	7	Research on Portland cement.
Society of Automotive Engineers	4	Research on fuels.

That industrial research pays extraordinary dividends is proved by many actual cases. It is not unusual that such research at the Bureau of Standards returns to industry and to the public a yearly dividend a hundred times the investment. Less direct gains of a high order promote safety and efficiency and help lay the foundations of the scientifically planned industries of to-morrow. Such research is part of the business-enterprise program of many industries. The research associate plan is designed to make these research facilities available to all, on a basis which, as shown below, not only pays its own way but yields dividends of great magnitude as well.

The Bureau Visiting Committee established by Congress cited in its recent report several cases of economic savings to industry from research in the Bureau of Standards—$15,000,000 annually saved to industry and the public from the bureau's brake-lining investigation, $40,000,000 annually from its tire investigations, and $100,000,000 annually from the motor-fuel investigations and standards. The

establishment of a dextrose industry was a result of discoveries in the bureau's carbohydrate laboratory. In the pending establishment of a new national industry for the commercial production of levulose, the sweetest member of the sugar family, the bureau is devising the technique for crystallizing this new sugar from the Jerusalem artichoke and the dahlia.

An example of how incidental gains from research may far more than pay for the research is seen in the bureau's investigations on elevator interlocks, which are credibly estimated as saving $500,000 annually, to organizations owning and operating elevators, through voluntary reduction in insurance premiums by the insurance companies.

The Portland Cement Association has placed at the bureau a group of seven specialists to study the fundamental problems concerned with the chemical constitution and internal structure of Portland cement. Exacting researches on phase equilibria, synthetic effects, hydrolysis, hydration, disintegration, thermal effects in the setting process, consistency, solution equilibria, petrographic mineral analysis, optical constants of constituents, and the X-ray examination of clinker are among the more important studies at present being investigated.

The engineers in charge of the trackage of the electric railways of the country found that welded joints in the rails were failing within a year or two while the rails themselves would last 15 or 20 years. Renewals involving tearing up and replacing of the paving were a large proportion of the expense of track maintenance. Experts enlisted the cooperation of the bureau, a research program was outlined, and the companies interested, through the American Electric Railway Association, contributed a specially designed impact-testing machine and a staff to operate it, including welding outfits and welders. The machine was used because the failure of the rails was found to be due to impacts of the wheels in passing joints. The impact tests were made of all types of rail joints usually used, and the results have been published in progress reports by the committee. The third progress report, recently made, gives test-data figures of broken rails. The seam-weld joints are found to fail at 35,000 to 265,000 impacts; the best butt-weld joints are withstanding a million and a half impacts of 400 pounds dropped 6 inches 70 times a minute for a month.

The manufacturers of walk-way surfaces and the walk-way safety group maintain a research associate, on recommendation of the American Engineering Standards Committee. This associate has already devised a method and apparatus for measuring the slipperiness or coefficient of friction of walk ways and has made actual measure-

ments for oak-tanned sole leather and for rubber soles. The astonishingly large number of accidents from falls on walk ways makes the research one of human interest and of economic importance.

The Copper and Brass Research Association maintains a research associate at the bureau to study metal roofing and the best methods of applying such roofing to structures to withstand the effects of temperature, humidity, and chemical action under the varied conditions in this country. This associate is obtaining data for perfecting the design and installation of such roofing. Measurements of the roof of the National Museum showed that under the direct rays of the sun the roof attains a temperature 50° higher than that of the surrounding air. This and other conditions must be met in securing the maximum durability and effectiveness of metal roofing.

The National Association of Dyers and Cleaners maintains a research associate with assistants for research pertinent to the industry. The problem of the recovery of the gasoline used in cleaning has been solved and tried out, and the reports have been published for the benefit of the industry, thus saving large quantities of gasoline formerly thrown away as unrecoverable. The same associate has written a reference handbook of cleaning technology for his industry, and in various cities conducts schools for members of the national association covering scientific methods of cleaning. At present the group is investigating the cleaning of silk as affected by perspiration and the metal loading of the silk fibers.

A prominent steel company has stationed a research chemist as associate at the bureau to study and devise new methods of working and treating iron and steel. A large textile organization maintains an associate on problems of interest to the hosiery industry. The results are reported to have saved the industry $28,000,000 already. One item, the standardization of hosiery boxes and packing cases, is estimated as having a potential saving of $3,000,000 when the accepted results are applied.

The face-brick industry arranged for a research associate now engaged in experimental study and research on the problem of efflorescence of brick walls and the means for preventing it. The gas industry maintains a worker studying methods of testing the safety of gas appliances. The American Society of Mechanical Engineers, through two skilled experts appointed as research associates, is cooperating in determining with precision the numerical constants and the properties of steam as a basis for its more effective use.

The Federal Bureau of Efficiency has two research associates working at the Bureau of Standards on the durability factors of currency paper. A metal organization supports an associate experimentally studying the wear resistance of bronzes. The rise of the industrial

LIBRARY OF

NORTHWESTERN UNIVERSITY

uses of gypsum led the gypsum industries to establish a research associate to study the possible means of waterproofing gypsum. The Hollow Building Tile Association made provision for research on the fire-resistant properties of hollow clay tile. A limestone quarrymen's association supports research on the properties of this important building material, methods for waterproofing its products, and the prevention of objectionable discolorations.

Similar problems upon which research associates are working concern such subjects as the use and care of marble for interior installations, the moisture content of yarns, the use of glue for the sizing of paper, the development of a quick-setting lime plaster, research on architectural terra cotta, electrotyping, refrigeration, and on the physical properties of dental materials with special reference to their shrinkage and other dimensional changes as affecting their suitability for dental fillings.

In general, the system of research associates, ranging from the individual guest associates to the more formal and permanent research workers who may remain stationed for several years, offers a most flexible method of close-knit cooperation with the industries, the technical groups of experts, and scientific societies and organizations for the conduct of special study and research.

COMMERCIAL AND ASSOCIATION-OWNED LABORATORIES

Technical research is not always connected with any set type of laboratories. In each case the problem determines the method. The problem of curing olives and of the prevention of spoilage in the preserved product, which confronted the Association of American Importers of Spanish Olives, did not necessitate the building of a laboratory. It was sufficient in this case to retain the services of a chemist and a bacteriologist.

The engineering bureau of the National Lumber Manufacturers' Association has been interested in the investigating and testing of different types of lumber construction, shingle fire tests, and tests of heat transfer through wall structure, undertaken by the Bureau of Standards in conjunction with the Underwriters' Laboratory and the Forest Products Laboratory. Tests have been completed on interior building construction, on loading timber columns, and on post caps for mill construction. Committee activity makes available to the membership the achievements of technical societies, such as the standardization of railroad ties and poles and the safety codes for logging and sawmill operations and safe walk-way surfaces.

The technical laboratory of the Warm Air Heating and Ventilating Association is a residence unit, supplied for the research work

being conducted at the University of Illinois. The objects of the investigations made in this "home" laboratory are:

1. To establish principles for warm-air heating.
2. To determine the efficiency and capacity of warm-air furnaces under conditions similar to those existing in actual installations.
3. To determine satisfactory and simple methods for rating furnaces so that the proper size and type of furnace can be definitely selected for the service required.
4. To determine methods of increasing the efficiency and capacity of furnace heating equipment and the advantages or desirability of certain types of design.
5. To determine the heat losses in furnace heating systems and the value of insulating materials as affecting the economy of the furnace or the leaders and stacks, and, finally, of the system as a whole.
6. To determine the proper sizes and proportions of leaders, stacks, and registers.
7. To determine the friction losses in the cold air or recirculating ducts and registers.
8. To make a study and comparison of outside and inside air circulation.

The National Slate Association carries on its research both in the laboratory and in the quarry. In cooperation with the Bureau of Mines, the utility of a wire saw for cutting slate is now being tested. Experiments involving quarry equipment generally enlist the support of an associate member group comprised of equipment manufacturers.

Augmenting the research activity carried on in cooperation with the Bureau of Mines, the Bureau of Standards, and the Geological Survey, the Natural Gas Association has just completed a survey to ascertain the loss of gas through leakage and to determine means of prevention. The association is now making a study of orifice meters and gas measurement and is cooperating with the American Gas Association in appliance testing.

The testing laboratory of the American Gas Association is located in Cleveland, where both natural and artificial gas are available. Initial work in this laboratory, established in 1925, was in the nature of research to establish standards for gas appliances. The standards developed have been approved by the American Society of Mechanical Engineers and the American Engineering Standards Committee. Their adoption is now being considered by the Canadian Gas Association. Since the final completion of the approved requirements for flexible gas tubing, gas ranges, and space heaters, the laboratory has tested and approved 14 different types of flexible gas tubing, 44 models of space heaters, and 1,715 gas ranges.

The American Institute of Baking is operating four complete baking units, consisting of the institute bakery with its commercial scale equipment, ovens, and machinery; the experimental baking laboratory, used exclusively for the instruction of students; the baking laboratory of the technical and service department; and the research baking laboratory, recently added. These added facilities have extended the association's research into the field of flour, fermentation, and special scientific instruction of students. Baking ingredients, subject to special claims by their manufacturers, are given elaborate tests and repeated analyses, sometimes requiring a year's trial. These analyses have been developed to produce a certified list of acceptable ingredients. The total of products now so registered numbers 106, with several applications pending.

The National Association of Dyers and Cleaners, which supports three fellowships at the Bureau of Standards, is now, through a subsidiary corporation, building a school and laboratory in Washington at a cost to exceed $125,000. The new corporation is chartered to conduct a school for students, a research laboratory, and a model cleaning plant.

The Electrical and Gas Refrigeration Trade Extension Bureau also operates a separate laboratory, which, with cooperative research at Columbia University, assists in the production of safe and efficient refrigerating machinery. This research was motivated by an explosion of a dangerous refrigerant—a catastrophe which threatened to demoralize the market for reputable products.

The Southern Pine Association has retained a consulting engineer whose activities include the verification of strength tests of southern pine in comparison with other species; investigation of possible uses for short lengths; study of the effects of paints and preservative treatments upon southern pine; investigation of wood fireproofing preparations; and the dissemination of general information on the proper and improper use of southern pine.

The research of the National Canners' Association falls into three divisions—technological, physiological, and economic (raw products). For the technological work the association maintains its own laboratories in Washington, San Francisco, and Seattle. The raw products research bureau of the association serves as a clearing house for agricultural research—Federal, State, and private—as applied to the improvement of canners' crops. In its technological work the association has studied such problems as the types of tin plate suitable for food containers, causes of discoloration in canned foods and methods of eliminating it, proper processing time and temperature for various foods, and the effect of the canning processes on the vitamin content of canned foods. Most of the physiological research has related to the toxicity of foods and to food poisoning,

and has disclosed that relatively little illness is chargeable to canned foods. Raw-products research has covered the development of improved varieties of canners' crops; better seed supplies; more effective protection against insect pests and plant diseases; studies of soils, fertilizers, and plant breeding; and kindred subjects of interest to growers of canners' crops.

The Laundryowners' National Association, through its department of research which has been functioning since 1912, has investigated the properties of textiles in cooperation with manufacturers and finishers of fabrics, with a view to eliminating laundering weaknesses. The use and effect of laundry supplies on textiles have been tested and purchase specifications have been drawn for soaps, sodas, bleaches, starches, and blues. Laundry tests and procedure charts have also been prepared.

The American Association of Creamery Butter Manufacturers maintains a bacteriological and chemical laboratory for determining the composition of products manufactured by the members. Bulletins are issued from time to time on the sanitary care of dairy products on the farm, and on feeding and breeding.

The Glass Container Association is making a study of the sterilization of its products. The laboratory also engages in general research as a service to member manufacturers and their customers.

The laboratory of the Asphalt Association is making a study of the stability of various asphalt paving mixtures. A uniform stability test and formulas for utilizing paving materials to provide maximum resistance to displacement are also receiving attention. In many instances the results of this research make available local materials for paving which without the test procedure would not be deemed suitable.

The Paperboard Industries Association, in addition to the industrial fellowship supported at Mellon Institute, maintains a package designing and testing laboratory at Chicago. This laboratory, which specializes in the designing of containers and interior packing for articles which present difficult packing problems, is completely equipped to make sample boxes for articles submitted by members or their customers. A similar laboratory is also maintained at Rockaway, N. J.

THE FELLOWSHIP PLAN

The support of fellowships and studentships in educational institutions has the dual advantages of training men for the industry and at the same time solving the industry's problems. Complete data are not available to show how important this type of research has become, but the following examples illustrate the significant place it holds in many industries.

The Biscuit and Cracker Manufacturers' Association maintains a technical bureau in Dunwoody Institute at an expense of about $20,000 a year, the purpose of which is to educate members in the science of baking, to conduct a school of instruction for baking superintendents, and to seek improved methods in the processes of baking and icing. A fellowship is also maintained at the University of Minnesota for study of chemical problems.

The National Fertilizer Association supports nine graduate fellowships in as many agricultural colleges. One of the members has permanently endowed a fertilizer fellowship at Mellon Institute. The Compressed Gas Manufacturers maintain a fellowship at Mellon Institute to promote new uses for their products. The Paperboard Industries Association and the Hatters Fur Cutters' Association also support fellowships at the same institution. The American Bottlers of Carbonated Beverages maintain a fellowship for four chemists at Iowa State College for research on the problems of beverage manufacturers. The National Canners' Association, previously mentioned, is advancing its physiological research by grants made to Harvard, Stanford, California, Chicago, and Columbia Universities. The Hollow Building Tile Association has recently instituted a fellowship at Iowa State College for experimentation on the design and construction of an all-tile barn.

THE ASSOCIATION AS A CLEARING HOUSE

The summation of research activities of associations carried on in universities and in private and Government laboratories is an incomplete picture of total progress. Each industrial unit is in itself a laboratory, the achievements of which are spread to the entire industry through the medium of the trade association.

Illustrative of this procedure is the engineering exchange of the News Print Service Bureau. This exchange includes operating reports, described below, on the practices in 80 per cent of the industry.

1. *Paper mill operating report.*—This report shows the operating time, trim, speed, basis weight and production, etc., of the individual machines. In addition it develops a "machine crew efficiency" for each machine and provides for an analysis of losses due to "washups," "wire and felt changes," and "broke." The "pound per inch trim," finish, steam per ton of paper, and other essential information are given also.

2. *Machine wire and clothing report.*—This report is a measure of wire and felt life and efficiency that is not affected by price fluctuations. The monthly and cumulative results are shown on a standard basis for each piece of equipment on each machine.

3. *Steam plant efficiency report.*—This report measures the results of boiler-house operations and is based on the recognized standard A. S. M. E. "Boiler Test Code" rearranged to fit paper-mill steam-plant work.

The above reports are based upon standard methods outlined in the "Manual of Instructions for Reporting Paper Mill and Steam Plant Operating Reports," prepared by the bureau in cooperation with a committee of technical men representing its members, after an exhaustive study of the best practice for setting operating standards and compiling efficiency reports.

Personal advice and assistance are rendered in the installation of standard efficiency reporting methods. Further help toward a better understanding of the steam plant comparative statements has been given by means of a pamphlet which shows diagrammatic sketches of the steam plants of the reporting companies and a record of their boiler-house equipment.

The engineering department of the News Print Service Bureau, in cooperation with other branches of the industry, is working upon a thoroughgoing program looking toward the reduction of waste in pulp and paper mills through methods of conservation and utilization. These studies at present are particularly concerned with the development of methods for the utilization of barking-drum and mill refuse for fuel, the reduction of broke losses, and methods of determining and reducing white water losses.

The bureau also conducts special investigations and prepares reports from time to time upon particular operating problems as requested by members, and is constantly in touch with the latest mechanical and technical developments in the paper and allied industries. The secretary of the bureau has for some time been a member of the executive committee, and the engineer is chairman of the committee on waste, of the Technical Association of the Pulp and Paper Industry.

COMMERCIAL RESEARCH

Research into the problems of distribution, like industrial research, as an association activity is only partly revealed by a tabulation of published reports or conclusions, the exchange of information at conferences representing an immeasurable contribution to the campaign for more efficient business practices. Formal commercial research, however, is in its infancy.

The activity in the field of cost accounting discussed in Chapter V gives a clue to the intensity of interest in scientific control of business. The resources of university schools of business have been called upon for the dual purpose of training men for business and at the same time providing some conclusions of immediate value to business. Statistical surveys and cooperative advertising campaigns, discussed in Chapters III and IX, give further evidence of

an industrial consciousness arising to cope with changing competitive conditions.

The National Retail Dry Goods Association supports the Prince School of Education for store service at Simmons College. Typical investigations of this association include operation of bargain basements; alteration workrooms; personal shopping service; merchandise control of stocks; court decisions on itinerant vendor and transient merchant legislation; operation of phonograph departments; receiving and marking procedure; store closing hours and vacation policies; public restaurants—status, functions, methods of operation, and operating expenses; method of prorating wrapping charges.

Other special services are illustrated by its study of raw-silk supply, made at the time of the earthquake in Japan, and a detailed informational service carried on during the fur strike in New York.

The Motor and Accessory Manufacturers' Association conducts a sales development department which has organized several groups of members with kindred problems to analyze distribution practices. The National Association of Marble Dealers sent an investigating party to the marble fields of Tuscany, Italy, which reported both to the Tariff Commission and to the membership the information it gathered on production methods, wage rates, quarry organization, transportation, and cost of production. The service department of the Hollow Building Tile Association furnishes literature and plans to members who do not have sufficient business volume to warrant them in preparing their own. A motion-picture film graphically portraying the valuable qualities of hollow tile is of further assistance in improving merchandising conditions.

The Institute of Margarine Manufacturers makes trade surveys covering the major marketing problems confronting the industry.

The National Fertilizer Association is making studies of sales opportunities, and for most of the northern and eastern sections of the United States has analyzed the crops grown, types of agriculture, unusual conditions, and purchasing power of farmers. Changes in distribution channels also are studied with a view to selecting the most economical practices. The activities of the American Gas Association in commercial research are best evidenced by a few of their publication titles, as: Cooperation of Gas and Plumbing Industries; Sales Plans and Methods; Seasonal Slumps; Market Stimulation; Window Display; Increasing Per Customer Consumption; and Hints for Housewives.

The Paperboard Industries Association has three representatives studying modern packing practices and the kind and cost of con-

tainers in use. The results of these studies form a basis of reports to shippers on more economical and more efficient practices. This association has cooperated with the division of simplified practice of the Department of Commerce on the standardization of shipping containers and on packing methods designed to prevent loss and damage in transportation.

The Southern Pine Association has prepared, at regular intervals, studies of lumber-market requirements. The results of these studies are given to subscribers in considerable detail, showing the probable or actual consumption of southern pine in feet, in grades, and in items, to enable members to supply economically the demands of the respective trades through special cutting and methods of manufacture.

Rather than attempt to catalogue all possible examples of association activity in this field, attention is directed to the list of activities appearing in the bulletin, "Market Research Agencies," published by the United States Department of Commerce, in which the achievements of 46 associations in this line are listed. The research described covers practically every factor of market location, extent, continuity, capacity, and accessibility. While no group embraces the complete field, there is evidence of a systematic search for economies in the processes of exchange and movement of goods and services. These activities are of the utmost interest to the consuming public because the results are expressed in permanent economies. To this end the domestic commerce division of the Department of Commerce is cooperating directly with trade associations as a clearing house for market research information and, in addition, is making supplemental regional marketing and commodity surveys.

CHAPTER VII

SIMPLIFIED PRACTICE

Simplified practice, meaning the collective effort of an industry to reduce waste in the production and distribution of its products, through eliminating unnecessary varieties in sizes, dimensions, grades, or qualities, is now a widely recognized and well-established trade association activity.

Association interest in simplified practice developed out of the war-time contact of various industries with the War Industries Board. Interest was further stimulated by the survey of waste in industry made under direction of Secretary Hoover and a committee of the American Engineering Council early in 1921. The establishment of the division of simplified practice in the Department of Commerce in November, 1921, provided a clearing house or centralizing agency through which manufacturer, distributer, and consumer groups could meet to discuss their common problems and could decide upon eliminations of mutual benefit.

Through the cooperative relations between industrial and commercial groups and the division of simplified practice, 243 trade associations have, to date, promulgated and accepted 60 simplified practice recommendations and have thereby pledged themselves to adhere to these recommendations as their "standards of practice" in manufacturing, selling, or purchasing the commodities covered in the recommendations. Individual firms or companies, to the number of 4,986, have similarly pledged their support to these recommendations.

Recent resurveys of adherence to the simplified lines show the following results, in percentages of output, conforming to simplified practice recommendations:

	Per cent
Hollow building tile	84
Shotgun shells	81
Lumber	80
Milk bottles and caps	75
Face brick	74
Paving brick	74
Asphalt (grades)	74
Hospital beds	69
Sand-lime brick	62
Beds, mattresses, and springs	51

	Per cent
Metals field:	
Range boilers	99
Metal lath	99
Eaves trough and conductor pipe	97
Woven-wire fence	97
Steel reinforcing bars	85
Steel barrels and drums	84
Hot-water storage tanks	82
Brass sink traps	75
Sheet steel (jobbers)	53

This degree of adherence is in itself fair evidence that the objectives sought through simplified practice are being realized. These objectives, briefly stated in terms of the interests they affect, are as follows:

To the manufacturer, simplified practice means—

(1) More economical manufacture through less idle equipment, better scheduling of work, accurate cost accounting, long runs on large units, simplified packing, simplified material inventory, reduced cost per unit.

(2) More efficient labor through less seasonal fluctuations in employment, increased individual output, greater skill of workmen, ease of training employees, simpler and better inspection, smaller labor turnover, greater earning power.

(3) Less capital tied up in raw materials, special mechanical equipment, semifinished stock, finished stock, storage space, repair parts.

To the distributer—

(1) Increased turnover due to concentration of stock; staple lines—easy to buy, quick to sell—no slow-moving numbers; more effective sales force; more concentrated sales effort.

(2) Less overhead and better service through lower handling charges, less stock depreciation, smaller clerical forces, less obsolescence, quick and reliable delivery, fewer misunderstandings and errors.

(3) Decreased capital requirements for maintenance stocks, for packing materials, for storage space, for interest and other charges; also fewer complete lines to carry, and less operating margin required.

To the consumer:

Better value for money, better quality, prompt deliveries, quick replacement service, lower maintenance costs, simplified specifications, protection against unscruplous traders.

PROCEDURE

The principles of simplified practice have been successfully applied to individual businesses for years. However, there are many reductions in excess variety which can be successful only when all elements of an industry can unite their efforts. Chief among the handicaps which hamper action by an individual are lack of interest on the part of the general distributing and consuming trades; suspicions of his competitors and a fear that they will get an undue share of the business; lack of the machinery and experience to secure the desired results in the most direct fashion.

Associations have not, as a rule, found it difficult to apply simplified practice in their respective industries, once its aims, purposes, and procedure become well understood among the individual members. The five years' experience of the division of simplified practice in assisting industries to establish simplified-practice programs has helped to develop a definite procedure, which, if followed closely, usually secures the results sought.

Briefly, the procedure of the division of simplified practice divides itself into seven basic or essential steps. The use of these seven steps insures intelligent cooperation of all interests and coordination of allied projects. The achievements are systematically followed by others, and the number of adherents is increased. To cope with the changes made necessary by the lapse of time, machinery is provided to accomplish the revisions. Since the procedure enlists the support of all possibly interested parties, national prestige is accorded the recommendations and the practice of self-regulation of industry is further advanced.

THE SEVEN SERVICE STEPS

1. *Telling the story.*—Presentation of the advantages of simplified practice and the department's service, through talks to trade associations or through other organizations interested, showing the results achieved in similar fields through reduction of variety. These talks are illustrated by lantern slides and are modified wherever possible to apply particularly to the immediate field of interest.

2. *Fixing the facts.*—Authorization of a trade-association secretary, or other competent man chosen by the industry concerned, to act as a representative of the Secretary of Commerce in making a preliminary survey which shall summarize the facts of present practice. Experience proves that this authorization from the Department of Commerce greatly strengthens the surveyor in his appeal to all producers.

Repeated experiences have demonstrated that a haphazard selection of varieties to be eliminated generally results in failure. Actual survey of all varieties in use is a tedious procedure, but it stands out as the only satisfactory plan to follow.

The report made by the National Paving Brick Manufacturers' Association indicates the thoroughness with which this survey must be made to be practical. Repressed lug brick was reported as the predominant variety in 1914, constituting more than 72 per cent of all the product marketed. Its use declined steadily and uniformly in proportion to all types until 1920, when the percentage had fallen to slightly less than 25 per cent.

Second in importance was wire-cut lug brick manufactured under the Dunn patents. This type represented about 15 per cent of total shipments, increasing to approximately 33 per cent in 1919. During 1920, however, the percentage of such shipments dropped to 22 per cent.

Vertical-fiber lug brick ranked third in shipments during 1914, equaling about 7 per cent. A slow upward tendency was noticeable in this style of brick between 1915 and 1920, the shipments having reached 13.3 per cent in the latter year.

Plain wire-cut brick (vertical-fiber lugless, fourth in total shipments in 1914 with a percentage of 6) remained substantially the same until 1917, with a slight rise and fall intervening. From 1917 to 1920 a material increase in the percentage of this type to all brick shipped caused it to be the predominating type, a gain of 34 per cent being made.

Special brick, including hillside brick made under the Dunn patent, repressed hillside brick, and street railway track brick, in no year from 1914 to 1920 exceeded 3 per cent of total shipments, and roughly held their own at 2 to 3 per cent each year.

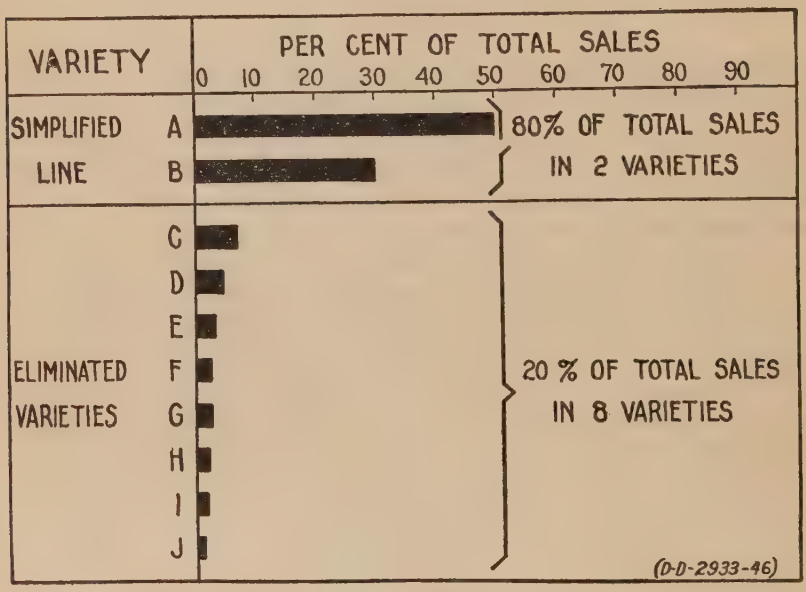

FIG. 1

The results of the field survey indicated that 2 sizes of 10 varieties constituted the major shipments of paving brick during the years 1914 to 1920, and that these 2 sizes and 10 varieties had grown at the expense of the remaining 56 varieties manufactured—a conclusive proof that simplification in the paving-brick field was not only desirable but essential.

The doctrine of simplification is concentration on sizes and varieties in greatest demand. When the volume of business done in the various sizes is adequately presented in a statistical summary, the simplification argument is complete. The usual experience of trade associations in tabulating the volume of business done in each of the varieties of the particular product is well illustrated in the accompanying chart.

3. *Developing the application.*—Arrangement of general conference at the Department of Commerce in Washington, or other central point, to which all producers, distributers, users, and general interests are invited in order that they may consider, survey, make recommendations, appoint accredited committee, and determine revision period.

4. *Broadcasting the action.*—Circularization of individuals with copy of recommendation and request for formal written acceptance, as illustrated by the following form:

ACCEPTANCE OF SIMPLIFIED PRACTICE RECOMMENDATION

Please sign and return this sheet. No postage required. Franked envelope inclosed.

Date_____

The SECRETARY OF COMMERCE,
Washington, D. C.

SIR: We, the undersigned, do hereby accept the original draft of the Simplified Practice Recommendation dated October 27, 1926, as our standard of practice in production,[3] distribution,[3] consumption,[3] of white glazed tile and unglazed ceramic mosaic, for the year beginning January 1, 1927, and will use our best effort in securing general adoption of the recognized types and sizes of white glazed tile and unglazed ceramic mosaic.

To permit intelligent review of the effectiveness of the recommendation every year by an accredited committee of all interests working in cooperation with the Department of Commerce, we will supply all data, upon request, which may be necessary for the development of constructive revisions. It is understood that any suggested modifications will be submitted as soon as formulated and shall not be binding until accepted in form similar to this recommendation.

Signed _____
Title _____
Company _____
Street address _____
City and State _____

We are members of the following trade associations or other organizations interested in the production, sale, or use of white glazed tile and unglazed ceramic mosaic.

5. "*Selling*" *the proposals.*—Explanation and support of recommendation by letter, interview, or illustrated talks.

6. *Certifying the values.*—Publication of recommendation in the department's regular series on simplified practice.

7. *Following through.*—(*a*) Periodic resurvey to determining adherence and secure basis for constructive revision; (*b*) arrangement of periodic reviewing conferences of committee or industry to consider revision; (*c*) repetition of 4, 5, 6, 7—circularization, education, publication, and resurvey—after each review.

[3] Please designate which group you represent by drawing lines through the other two.

SIMPLIFICATION IN ACTION

These seven service steps are illustrated in the experience of the National Retail Hardware Association, the National Association of Sheet and Tin Plate Manufacturers and various distributer and consumer groups in the preparation of the simplification practice recommendation on sheet steel.

In May, 1923, the National Hardware Association, conscious of the growing number of sizes and varieties of products handled, requested a member of the division of simplified practice to explain at their spring meeting the achievements of other trade associations in meeting similar problems.

At this meeting a simplification committee was appointed from members of the association to study the sheet-steel industry and to prepare such recommendations as the committee believed would eliminate unnecessary varieties. This committee was assisted in the preliminary survey by the National Association of Sheet and Tin Plate Manufacturers.

The final report developed that approximately 85 per cent of the total tonnage in the survey was embraced by 15 per cent of the items. In other words, there were 1,819 items, and 85 per cent of the tonnage manufactured and shipped to distributers during the last six months of 1923 was ordered in 263 items.

Taking the several products separately, it was found that in one-pass cold-rolled box annealed 72 per cent of the business was done in 43 of 434 items made; in blue annealed, 70 per cent of the business was done in 52 of 523 items; in galvanized sheets, 71 per cent was done in 110 of 673 items made; in galvanized roofing, 97 per cent of the business was done in 38 of 142 items made; in painted roofing, 80 per cent of the business was done in 6 of 47 items made.

As a result of its study, this committee drafted a schedule to be submitted to a general conference of the industry. The trade associations participating in the survey arranged for the distribution of the preliminary recommendations to all interested parties.

The first general conference for discussion of the recommendations was held in October, 1924. With certain amendments, the schedule was finally approved by the conference reducing the number of items from 1,819 to 261. Before the close of the conference, January 1, 1925, was selected as the date for putting the new standards into effect. Semiannual meetings were arranged in advance to consider such revisions in the schedule as might be necessary, and the personnel of the standing committee to arrange for these meetings was appointed.

It had been developed by actual survey that 85 per cent of the total tonnage was embraced by 15 per cent of the items. By unani-

mous agreement of a conference including the major portion of the industry, the number of manufactured items was reduced 86 per cent. The sheet-steel industry now estimates that these simplifications have resulted in an annual saving of $8,000,000. This achievement was made possible by the close cooperation of the National Association of Sheet and Tin Plate Manufacturers, the National Association of Sheet Metal Contractors, including 38 local and State contractors' associations and 12 associations of distributer and consumer groups.

REVISIONS

In any conference of producers, distributers, consumers, and others with the division of simplified practice there are two actions which a conference is asked to take in addition to the adoption of such simplified practice recommendations as it feels are of greatest benefit. The first of these is to make the recommendations effective for a definite time. The period is generally set to cover one year from effective date. The effective date is usually set far enough ahead to enable all groups to prepare for the change, to broadcast the action taken, and to clear away stocks of eliminated varieties. The second is to provide for means of making revision at the end of the period during which the recommendations are in effect. This may be done either by another general conference of all groups, or it may be accomplished through a standing committee of the industry, such a committee to include representatives of manufacturers, wholesalers, retailers, consuming groups, and technical or scientific organizations. The latter is the more common plan. To the standing committee are referred all matters dealing with adherence to the program; suggestions as to needs for reinstatement of eliminated items or the elimination of other items; and information as to new developments either in methods, invention, or other factors which would seriously affect the program in any way.

Periodic meetings of the standing committee and surveys conducted by the committee afford the means of developing revisions to be submitted to the industry when a continuation of a simplified practice program is under consideration.

In the organization of standing committees lies a further opportunity for the trade association to serve its membership as well as the industrial or commercial community by encouraging the widest adherence to the program, and an intelligent study of needed changes or revisions.

In some lines the conferences may decide that to obtain the full benefit of simplification, standard specifications or other standards of practice must be developed. If the industry does not have proper laboratory facilities or engineering talent within its organization,

the division can arrange for the services of the Bureau of Standards, in research, and for those of the American Engineering Standards Committee, in the development of technical standards. In such instances the bureau or the standards committee will proceed under the direction of a committee of the conference and will report at a subsequent conference. The adoption of the specification or other standards by this second conference must precede its support by the Department of Commerce.

Simplified practice may thus take any form which the industry or business believes will be of service in reducing the tremendous wastes now incident to excess variety in shape, size, quality, process, composition, or any other characteristic of product. Whatever the form developed, the Department of Commerce stands ready to support all such simplifications of practice as will eliminate waste, stabilize business, or extend our national commerce.[4]

ADVANTAGES TO INDUSTRY

Savings resulting from several of the simplified practice recommendations are estimated by the leaders of the industries concerned as follows:

Field	Varieties reduced		Estimated annual saving
	From—	To—	
	Number	*Number*	
Paving brick	66	4	$1,000,000
Sheet steel	1,819	261	2,400,000
Reinforcing bars	40	11	4,500,000
Warehouse forms	3,500	18	5,000,000
Range boilers	130	13	5,500,000
Invoice, inquiry, and purchase order forms	4,500	3	15,000,000
	Per cent	*Per cent*	
Lumber-yard sizes	100	40	250,000,000
Total saving			283,400,000

Indicative of the values which trade associations have found in simplified practice are the following statements by their executives.

National Paving Brick Manufacturers' Association, Edward E. Duff, secretary, in a letter of March 15, 1924, says:

> The continued decrease in the number of varieties as well as the steady increase in the shipments of recognized varieties of paving brick manufactured, together with the increased business of the industry, as shown in the total shipments, measure the success of this undertaking in no uncertain manner.

American System of Reinforcing, A. E. Linda'u, president, in a letter of April 28, 1925, says:

[4] Descriptive pamphlets covering these matters in greater detail than space here permits may be obtained from the division of simplified practice, U. S. Department of Commerce, Washington, D. C.

It is extremely difficult to put down in cold type what this amounts to and remember all of the elements of economy that enter into the problem. As a matter of fact, the bar companies, or distributors of reinforcing material, effect only a part of the saving. A large part of the saving is effected by the rolling mills in equipment, rolls, and roll changes. In fact, I would say that the biggest saving rests with the steel mills, and with them it is not only a saving of interest on investment but an operating saving. They have at the present time only half as many roll changes to make as under the former condition, and they need to carry in stock only half as many rolls. We bar distributors probably carry in stock something like 100,000 tons of bars, which would represent an investment of $5,000,000. The interest on this at 6 per cent is about $300,000 a year. At least half of this amount has been saved by simplification, and other savings which are more difficult to estimate accrue in operating the plant.

American Farm Bureau Federation, O. E. Bradfute, president, in a letter of December 16, 1924, says:

The farmers are very much interested in the standardization of manufactured products and hope the Department of Commerce will continue to pursue methods which will bring about simplified practice in many of the products which are consumed by farmers, as well as those which are produced by them.

The American Federation of Labor, William Green, president, in a letter of June 2, 1925, says:

The work being accomplished through the division of simplified practice of the Department of Commerce seems to me so essentially basic in an industrial program to eliminate waste that I am very glad to record my hearty approval of the procedure and the method.

Trade association officials, desirous of strengthening their own service-rendering values to their organizations and to the industries they represent, will find in simplified practice an increasing opportunity to that end.

The elimination of unnecessary variety in the products of the industry provides a common understanding and mutuality of interest that paves the way for collective and cooperative effort in other directions, such as group or cooperative advertising, market research and analysis, sales promotion, statistics, and scientific research.

Modern competitive conditions demonstrate that real competition is not only that of one firm against another within the same industry, but also the competition between the product of one industry and that of another. To meet this group-by-group competition, it is becoming increasingly necessary for the members of an entire industry to cooperate in the elimination of waste, the improvement of product, and the application of more scientific methods of production and distribution. Simplified practice affords a simple, readily understandable and easily applicable approach to lower costs, quicker turnover, greater sales volume, better profits, and lower prices.

CHAPTER VIII

INDUSTRIAL STANDARDIZATION

Notable developments have been made in industrial standardization in the mining, electrical, mechanical, and other engineering fields, and in the further extension of standardization through professional, industrial, and trade association activities.

Industrial standardization consists in singling out specific products and materials, in settling upon their performance properties and dimensions, and in concentrating upon them both in production and in use to the end of bringing about the greatest possible industrial efficiency. Such standardization includes:

1. Nomenclature, such as definitions of technical terms used in specifications and contracts, also technical abbreviations and symbols.
2. Uniformity in dimensions necessary to secure interchangeability of parts and supplies, and the interworking of apparatus.
3. Quality specifications for materials and equipment, as, composition, form, and structure.
4. Method of tests to determine standards of quality and performance.
5. Ratings of machinery and apparatus under specific conditions.
6. Safety provisions and rules for the operation of apparatus and machinery in industrial establishments. Safety codes and standards of practice.

ADVANTAGES OF STANDARDIZATION

The important rôle which standardization plays in industrial evolution, and its economic and social potentialities, are only beginning to be generally understood. Following are significant aspects of standardization,[5] when carried out on a sound engineering basis:

1. Standardization stabilizes production and employment, since it makes it safe for the manufacturer to accumulate stock during periods of slack orders, which he can not safely do with an unstandardized product.
2. It reduces selling cost. This is generally overlooked. Possibilities of reduced costs are generally even greater in distribution than in production.
3. It enables buyer and seller to speak the same language and makes it possible to compel competitive sellers to do likewise.
4. In thus putting tenders on an easily comparable basis it promotes fairness in competition, both in domestic and in foreign trade.

[5] Mechanical Engineering, August, 1926.

5. It lowers unit costs to the public by making mass production possible, as has been so strikingly shown in the standardization of incandescent lamps and automobiles.

6. By simplifying the carrying of stocks, it makes deliveries quicker and prices lower.

7. It decreases litigation and other factors tending to disorganize industry, the burden of which ultimately falls upon the public.

8. It eliminates indecision both in production and utilization—a prolific cause of inefficiency and waste.

9. By concentrating on fewer lines, it enables more thought and energy to be put into designs, so that they will be more efficient and economical.

10. By bringing out the need of new facts in order to determine what is best and to secure agreement on moot questions, it acts as a powerful stimulus to research and development, and it is thus in decided contrast to crystallization resulting from fixity of mental attitude.

11. It is one of the principal means of getting the results of research and development into actual use in the industries.

12. It helps to eliminate practices which are merely the results of accident or tradition and which impede development.

13. By concentration on essentials and the consequent suppression of confusing elements intended merely for sales effect, it helps to base competition squarely upon efficiency in production and distribution and upon intrinsic merit of product.

14. Standardization is increasingly important for the maintenance and development of foreign trade. There is strategy in nationally recognized "American" specifications.

15. The efficiency of competing countries, increasing through national standardization programs, is liable to transfer competition from foreign markets to our own shores.

16. Joint effort in bringing about standardization within and between industries almost invariably leads to better understanding and to beneficial cooperation along other lines—a step toward the integration of our industries.

STAGES OF DEVELOPMENT[6]

The process of industrial standardization may be conveniently divided into four stages, namely, (1) by individual firms; (2) by societies and associations; (3) on a national scale; (4) on an international scale.

Standardization by individual firms is now well developed in all the principal industrial countries. It has been the essential factor in the development of mass production, which has been the chief contribution of the United States to the development of industry.

The extensive company standardization developed during the last half of the nineteenth century inevitably gave rise to standardization by industrial groups. This work, which has been carried out by technical societies, trade associations, and Government departments, working individually, has, with a few notable exceptions, been a development of the present century.

[6] American Engineering Standards Committee Year Book, 1926.

Just as standardization by individual companies led to standardization by groups, so it in turn has led to interindustry standardization on a national scale. In this the trade association and the technical society play much the same rôle that the individual company does in standardization by separate branches of industry. All the leading industrial countries have found it necessary to establish national standardizing bodies. At present there are 20 such national bodies, all but one of which have been organized during or since the World War.

Standardization, being essentially a cooperative undertaking, must necessarily be predicated upon some form of organization. It is becoming one of the most important and most highly appreciated activities both of trade and of technical associations, and in a recent discussion of this matter the secretary of the American Engineering Standards Committee said that the center of gravity had shifted from the technical groups to the trade associations. Instead of leaving their standardization work as a more or less incidental function of the engineering and production departments, industrial executives are more and more providing a definite organization for their standardization work. The systematic organization of company standardization work is leading to a much larger degree of cooperation between companies.

In company standardization the problems of administrative technique are relatively simple. In standardization by a branch of industry they are more complicated on account of the larger number involved. In interindustry or national standardization the problems are still more complicated. In fact, such work can ordinarily be carried out only in those fields in which there exist well-developed trade and technical associations which can speak for the various branches of industry concerned.

So complex and interrelated has modern industry become that industrial organizations and their activities have become more or less of a maze. There are in the country perhaps a thousand organizations that may properly be classed as trade associations. Literally hundreds of technical and trade associations are engaged in standardization activities in some form. In addition, numerous branches of the Federal Government, and even State governments, are active in standardization work.

In order to make possible standardization on a national scale, there must be a central clearing house to bring about systematic cooperation among the hundreds of organizations on the innumerable problems that are crowding for solution. To meet the need for such a national clearing house, the American Engineering Standards Committee was organized.

This committee is a federation of 33 separate national organizations, including 9 national engineering societies, 18 national industrial associations, and 6 departments of the Federal Government.

It is primarily an administrative and policy-forming body and does not itself initiate or develop standards. Through its methods and procedure all organizations concerned participate in deciding whether a given piece of work shall be undertaken, in developing the standard, and in recommending its approval. In this way the results of the work of hundreds of bodies are broadened and unified into a national system of standards. The growth of the committee's work is indicative of the growth of the whole movement.

The American Society for Testing Materials, the American Engineering Council, and numerous other professional and technical bodies discussed in Chapter XXIV, have also played an important part in the standardization movement as cooperating bodies.

GOVERNMENT COOPERATION

The Federal Government is interested in industrial standardization in two ways. First, as a purchaser, it is interested in an extraordinarily wide range of specifications for materials and apparatus, and, second, through its great service and research bureaus, whose function is to serve industry and commerce, it is interested in innumerable standardization questions.

Thirty-three branches of the United States Government are officially represented on sectional committees of the American Engineering Standards Committee. The Bureau of Standards of the Department of Commerce is acting as sole or joint sponsor for 13 projects; the Bureau of Mines, Department of Commerce, for 7; the Forest Service, Department of Agriculture, for 2; and the Public Health Service, Treasury Department, for 1. In addition, the Bureau of Standards, for example, is officially cooperating through representatives on sectional committees on 69 projects. One or more branches of the Federal Government are participating in this way in practically all the work now going forward under the auspices of the American Engineering Standards Committee. The Department of Labor is playing an important part in the safety code program. It now designates representatives of labor on all sectional committees dealing with safety codes, and is publishing approved safety codes as Government documents.

The State governments are also actively participating in the work, chiefly through national organizations of State commissions. The most active of these are the International Association of Industrial Accident Boards and Commissions and the Association of Governmental Labor Officials, through which the State governments are

taking a leading part in the entire safety code program. Other types of commissions participating in the work are the highway and traffic commissions (which cooperate through the American Association of State Highway Officials and the regional conferences of motor-traffic administrators) and the railway and utility commissions.

BUREAU OF STANDARDS

The Bureau of Standards of the Department of Commerce is a national agency for standardization and industrial research. Because they carry Government approval, the standards developed in the course of bureau research, often tend to become those demanded by the public. Commodities found to be satisfactory are sought by intelligent buyers throughout the country. For example, certain tests on American and foreign china tableware enabled the bureau to write specifications which have been adopted by the American Hotel Association and by other large users of china tableware. The Government specifications for cement, and the tests therewith have now become the commercially accepted standard. Again, the Government buys about $1,000,000 worth of electric lamps on specifications. The acceptance is based on Bureau of Standards tests. These have become effectively the standard of the country.

THE FEDERAL SPECIFICATIONS BOARD

This board was organized under the Bureau of the Budget in 1921. It is composed of representatives of each of the purchasing units of the United States Government, the chairman of the board being the director of the Bureau of Standards, ex officio. Its purpose is to unify Government specifications and to bring them into line with the best commercial practice. Cooperative arrangements between the board and the American Engineering Standards Committee have been made, by which the Government specifications are being submitted informally for criticism by industry and to determine their acceptability to industry.

The board has now adopted over 460 specifications. These have been very useful to other standardizing groups in promoting standard specifications in the various industries.

NATIONAL DIRECTORY OF SPECIFICATIONS

The Directory of Specifications, issued by the Department of Commerce in 1925, contains a classified list of over 27,000 commodity specifications. The publication of this directory has brought out sharply the need of simplifying and unifying this mass of specifications.

The work of compiling the directory was carried on cooperatively by the Bureau of Foreign and Domestic Commerce and the Bureau of Standards, in accordance with detailed plans formulated or approved by an advisory board, which was composed of 14 national organizations interested in the preparation and standardization of specifications.

STANDARDIZATION IN THE WAR DEPARTMENT

A War Department technical committee, consisting of representatives from the War Department General Staff and from all branches charged with duties in connection with the supply of the Army, considers and makes recommendations on matters relative to standardization, development of type, and preparation of specifications referred to it from time to time by the Chief of Staff. It is essentially an advisory body on standardization and related questions common to the supply of the Army.

For the purpose of effecting complete coordination between interested branches of the Army during the development of types of equipment and supplies and the standardization and preparation of specifications, each supply branch has its own branch technical committee. Subcommittees are utilized as far as possible in the work of branch technical committees on subjects referred to them before presentation to the commitee.

United States Government specifications are approved by the Federal Specifications Board for the general classes of supplies and commodities required by the War Department, but strictly military and confidential specifications are dealt with by the War Department alone.

There exists also a joint Army and Navy board for coordinating and standardizing specifications.

An alphabetic index of all United States Army specifications is published by The Adjutant General. A liberal attitude is enjoined with respect to compliance with requests for specifications from manufacturers, users, and others.

STANDARDIZATION IN THE NAVY DEPARTMENT

Standardization work in the Navy Department is perhaps the oldest and most completely organized of that of any Government department. Over a thousand printed specifications are in the Navy files. All purchases are made under specifications, and great care is taken to insure open competition in the interest of bidders and the general public. The Navy uses as few special materials as possible, adopting articles to correspond with commercial standards wherever

possible. It maintains a list of approved suppliers for a restricted number of materials and articles which can not be adequately described in the specifications, or which would require inspections or tests extending over an inordinately long period of time.

On large orders the Navy provides for inspection at the factory of the supplier through technically qualified field inspectors operating in stated districts. The size of the organization permits a certain degree of specialization of inspectors for particular products.

The Navy carries on in connection with its work on specifications extensive laboratory tests on a wide variety of supplies which it purchases for use on board ship and at naval stations. One bureau of the Navy Department has evolved a method of specification by which the actual performance of supplies is being used as a basis of award of contract. For example, the award may be made to that firm supplying an item which gives the most service (measured in some determinate unit of performance) per dollar of cost. The Navy buys practically no articles under brand names, but determines what characteristics are required and calls for those in suitable technical form, either on the basis of a composition or structure known to give suitable results, or in terms of a certain desired performance, to obtain which the manufacturer is at liberty to use such methods and materials as he may find expedient.

STANDARDIZATION IN THE AUTOMOTIVE INDUSTRY

In 1910 the Society of Automotive Engineers appointed a standards committee to formulate standards to simplify and coordinate routine automobile engineering practices. The Association of Licensed Automobile Manufacturers, now the National Automobile Chamber of Commerce, made the society the custodian of standards they had established.

In 1916 and 1917 the American Society of Aeronautic Engineers, the National Gas Engine Association (now the Gas Engine and Farm Power Association), the National Association of Engine and Boat Manufacturers, and the Society of Tractor Engineers were discontinued, their members joining the Society of Automotive Engineers. This society represents also the Motor and Accessory Manufacturers' Association and the Manufacturers' Aircraft Association in engineering standardization.

The Society of Automotive Engineers' standards and recommended practices on items special to the automotive industry consist of material, dimensional, and test specifications, terminology, rules for procedure in maintenance of parts, and provisions as to various closely related matters, which, according to the consensus of qualified experts, can be generally adopted with great advantage, and which will in no

way interfere with or impede progress in design and production of automotive apparatus and power units included in the field of activities of the society.

Standards and recommended practices have made possible economies in designing, purchasing, production, and maintenance, and have relieved automotive engineers of much detail and routine work, permitting them to concentrate upon more important engineering problems.

More than 600 standards have been formulated and widely adopted, applying to engines, electrical systems, parts and fittings, materials, and other matters. These may be broadly divided into production standards and parts replacement or service standards.

MARINE STANDARDIZATION

Standardization has taken root among American shipbuilders, and excellent progress is being made under the auspices of the American Marine Standards Committee, with headquarters in the Department of Commerce. The American Marine Standards Committee is a development of cooperation between the division of simplified practice of the Department of Commerce, the United States Shipping Board, and the American Marine Association, to provide standardization in connection with shipbuilding, ship operation, and allied industries.

Thirty-nine subject committees have been formed, and a number of proposed standards are in course of active development by these organized committees.

STANDARDIZATION IN ELECTRICAL FIELD

Standardization activities in the electrical field are divided among several organizations, each covering a definite field, and the work of all is so arranged that there is a minimum of overlapping in efforts. The bodies responsible for the preparation of the largest number of standards in this field are the American Institute of Electrical Engineers, the National Electrical Manufacturers' Association, and the American Electric Railway Association. To indicate more clearly the importance of the activities of each of these organizations in electrical standardization they will be discussed separately.

THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

The appointment of a committee of seven in 1898 to develop standards and specifications covering generators, motors, and transformers marked the beginning of standardization activities of the American Institute of Electrical Engineers. The results of this

committee work, approved in 1899, became recognized and, with subsequent revisions, have continued to be recognized throughout the United States as the authoritative source of information on the terms and conditions which characterize the rating and behavior of electrical apparatus, with special reference to the conditions of acceptance tests. Subsequent reports of the standards committee in the form of standardization rules were issued in 1902 and 1906. These rules comprise the substance of 40 different groups of standards. At present the main activities of the institute's standards committee are concentrated on the general revision of its standards, which involves their separation into a large number of pamphlets, each dealing with a specific class of apparatus.

The revised sections of the institute standards are later placed under American Engineering Standards Committee procedure and, together with similar material adopted by other organizations, form the basis for cooperation in the preparation of American electrical standards. The institute is now sole sponsor for four projects under the American Engineering Standards Committee procedure, is joint sponsor with various groups for seven other projects, and, aside from these, is represented in about 20 section committees.

The present membership of the standards committee is 37, with 29 subcommittees, specializing on various subjects and involving the work of 200 individuals. The present activities of the institute in standardization extend over 20 years of active work in standardization of design, manufacture, operation, and specification of electrical apparatus.

Standards of the American Institute of Electrical Engineers are now published in the form of a series of pamphlets, each pamphlet dealing with a specific subject. This is to simplify the process of keeping the standards revised to conform with the latest development and to enable those interested in a particular field to obtain separately the material covering that field.

Through the intermediary of the United States Committee of the International Electrotechnical Commission, of which it is a member, the institute participates in a very active way in the formulation of international electrical standards for nomenclature, symbols, rating, and testing.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

The International Electrotechnical Commission is an international body in the electrical industry. It represents 24 nations and arose out of a meeting of the American Institute of Electrical Engineers which was held in St. Louis, Mo., in 1904. To this committee has been due much of the international cooperation in the electrical

industries, and the resulting uniformity of practice, nomenclature, and rating has opened foreign markets to American electrical industries.

For 15 years the American Institute of Electrical Engineers exclusively supported the United States Committee of the International Electrotechnical Commission, but recently it has had the support of other organizations in the field also. It is the medium through which the institute's standards, representing electrical practice in America, are communicated to the international body and through which its standards committee learns the views of other countries.

NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION

The National Electrical Manufacturers' Association was organized for the standardization, improvement in production, and increase in distribution of electric machinery, apparatus, and supplies. The association is made up of manufacturers of electric-power apparatus, control equipment, and supplies, and in its standardization work it cooperates very closely with the American Institute of Electrical Engineers and the American Engineering Standards Committee.

Efforts of the technical committees of the association and of its predecessors over the past 17 years have resulted in a series of standards covering the manufacture, test, and performance of all kinds of electrical generators and motors, electric tools and grinders, mining and industrial locomotives and storage batteries for their operation, industrial control equipment, transformers, balance coils, switchboards, oil circuit breakers, and other electric power apparatus and control equipment produced in the United States. These standards and practices are published in handbook form and are revised to keep pace with the latest developments in the field.

AMERICAN ELECTRIC RAILWAY ASSOCIATION

Since its organization in 1906, the American Electric Railway Association has developed more than 130 standard designs, specifications, and practices. Of the rail production for electric railways in this country, 75 per cent is in accordance with the American Electric Railway Association standards.

A committee on standards is maintained to coordinate the work of the association's committees in the fields of buildings and structures, power generation and distribution, equipment, purchases and stores, signaling, way material, wood preservation, and car and house wiring.

The annual Engineering Manual, which incorporates the standards of the association, is the standard reference book of the electric traction industry on engineering problems.

ELECTRICAL ADVISORY COMMITTEE

For the purpose of correlating standardization work in the electrical field, there has been organized a general-policy committee advisory to the American Engineering Standards Committee on electrical matters. This committee functions in much the same manner as the Safety Code Correlating Committee and the Mining Standardization Correlating Committee, which have been engaged for some time in the formulation and promotion of safety codes and mining codes.

The functions of the Electrical Advisory Committee are to advise the American Engineering Standards Committee and other committees on all questions of policy relating to electrical standards and to serve as a general coordinating committee in the electrical field within the scope of the constitution, by-laws, and rules of procedure of the American Engineering Standards Committee. Such functions include the recommending of sponsors, defining and limiting the scope of projects in the electrical field, adjusting disputes, clearing up ambiguities, following up and expediting work in progress in the development of electrical standards, and reporting from time to time to the main committee upon progress made within its particular field of activities.

STANDARD SPECIFICATIONS FOR MUNICIPAL CONSTRUCTION

One of the objects of the American Society for Municipal Improvements, founded in 1894, is to promote the best methods in the construction of municipal works. Standard specifications for municipal construction have been prepared by the various specification committees of the society and have been adopted by it.

Among other standard specifications of the society are those covering sheet asphalt paving; fine aggregate asphaltic-concrete paving; street-railway track and sewers. The various standards are published in the proceedings of the annual conventions of the society.

The society is cosponsor with the American Society for Testing Materials, the American Association of State Highway Officials, and the Bureau of Public Roads for the following five standards developed under the procedure of the American Engineering Standards Committee and recognized as American standards: Method of test for penetration of bituminous materials; stone, slag, gravel, and stone-block sampling; test for apparent specific gravity of coarse aggre-

gates; cement-grout filler for brick and stone pavements; and specifications for block for granite pavements. It is also officially cooperating in 20 other standardization projects of the American Engineering Standards Committee.

STANDARDIZATION FOR DESIGN, CONSTRUCTION, AND TESTS

For the purpose of bringing to the user the best obtainable opinion on the merits of appliances, devices, machines, and materials in respect to life, fire, and collision hazards, also theft and accident prevention, the Underwriters' Laboratories (Inc.) was established and is maintained by the National Board of Fire Underwriters. The laboratories are conducted for service and not for profit, and were chartered by the State of Illinois in November, 1901. The principal offices and testing station are located at 207 East Ohio Street, Chicago, Ill.

One of the most widely circulated codes of the laboratories is its code for electrical appliances, which consists of standards for design, construction, and tests of devices and materials for use in electrical circuits for light, heat, and power, and for the forms of supervision of such products marketed under inspection and listing by the Underwriters' Laboratories. The code is in loose-leaf form to facilitate revisions. The following standards are included and may be also obtained as separate pamphlets: Armored cables and cords; cabinets and cut-out boxes; cartridge inclosed fuses; cut-out bases; electric ranges; electric signs; fixture wires; flexible cords; flexible nonmetallic tubing; ground clamps; heater cords; knife switches; panel board; renewable cartridge inclosed switches; rigid conduits; rubber-covered wires and cables; snap switches; soldering lugs. Additional standards are constantly under consideration and in preparation. Lists of inspected electrical appliances which have been examined and tested and found to comply with the standards of the laboratories are published semiannually.

The 1925 edition of the National Electrical Code was submitted under the sponsorship of the National Fire Protection Association to the American Engineering Standards Committee and is now formally approved as American standard. A 1926 supplement to the code has very recently been approved.

STANDARDS FOR CIVIL ENGINEERING AND BUILDING TRADES

Standards adopted in this group include a number of the specifications of the American Society for Testing Materials, a code of lighting for factories, mills, and other work places, giving the minimum illumination required from the point of view of safety, rules for the avoidance of glare, rules for installation of exits and emergency

lighting, and suggestions as to values of illumination economically desirable for different classes of work. Under this heading also is a safety code for ladders sponsored by the American Society of Safety Engineers and the engineering division of the American Safety Council. There is also a code for the lighting of school buildings, sponsored by the American Institute of Architects and the Illuminating Engineering Society.

MECHANICAL ENGINEERING STANDARDS

This type of standardization includes work with the National Screw Thread Commission, safety codes for the protection of workers in foundries, standards for mechanical power transmission apparatus and for foot, hand, and power presses, and standard screw threads for fire-hose coupling, the latter having been sponsored by the American Society of Mechanical Engineers, the American Water Works Association, and the National Board of Fire Underwriters. The standard symbols for electrical equipment of buildings were worked out by a group sponsored by the American Institute of Architects, the American Institute of Electrical Engineers, and the International Association of Electragists.

Many other projects are under way, including rivets, nuts, bolts, gears, flanges, and screw fittings—all used in the mechanical industries, such as the automotive industry, shipbuilding, metallurgy, mining, agriculture, lumber mills, pulp and paper mills, and in the manufacture of chemicals, textiles, glass and pottery. Miscellaneous standardization programs include such projects as a safety code for laundries, illuminating engineering nomenclature, and photometric standards, a safety code for industrial sanitation, sponsored by the United States Public Health Service, and a ventilation safety code.

STANDARD CODES

In dealing with the various industries which have contributed to the vast program of standardization mention has been made of the codes formulated. In no case, however, has there been an extensive elaboration on the importance of these codes in the industries discussed, but in the field of mechanical engineering, which is so very broad in its scope, there are two codes which have great bearing on safety and the determination of power-plant efficiency.

A. S. M. E. POWER TEST CODES

The purpose of these test codes is to provide standard directions for conducting and reporting performance tests of power-plant and heat apparatus. The work started in 1886, and the first code, entitled

"Standard Method of Steam Boiler Trials," which has since undergone several revisions (made necessary by the progress of the art), soon became the standard practice of the profession.

The test codes which have been completed to date are: General instructions; stationary steam boilers; reciprocating steam engines; condensing apparatus; displacement compressors and blowers; feed water heaters; evaporating apparatus; internal-combustion engines; hydraulic power plants and their equipment. Fourteen other codes are being revised or newly developed.

A. S. M. E. BOILER CODE

The purpose in developing the boiler code was "to formulate standard specifications for the construction of steam boilers and other pressure vessels and for their care in service." The work started in 1911. The first edition, covering power and heating boilers, was issued in 1924 and has since undergone several revisions, becoming more comprehensive.

Additional codes devoted to "rules for the care of steam boilers and other pressure vessels in service," also rules covering the construction and testing of unfired pressure vessels, have been formulated and were approved in 1925. Rules for the construction of economizers are contemplated.

The A. S. M. E. Boiler Code has been adopted in 19 States and 15 cities.

INTERNATIONAL STANDARDIZATION

There are now national standardizing bodies (20 in all) in Australia, Austria, Belgium, Canada, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, the Netherlands, Hungary, Italy, Japan, Norway, Poland, Russia, Sweden, Switzerland, and the United States. The general organization plan in these countries is to have a small but active national committee on policy and procedure and to have actual standards made by sectional committees. Each sectional committee is designed to be a cross section of the industrial groups which can contribute to making the standard and includes representation of producers, distributers, consumers, public authorities, and professional engineers. The national committee in general does not initiate standards but waits for the development of desirable standards through initial stages and then determines the policy and procedure to be used in making the standard. Drafts of contemplated standards are published widely for criticism and comment, and the general principle is followed of fitting standards to the needs of industry. Three of the national bodies are under the direction of their respective governments, but in the other cases the

standards committee is set up and administered as an industrial committee having government representatives as members.

This type of organization has been successful. In Great Britain there are 475 sectional committees at work, divided into 12 main subjects covering major industries. In Germany about 1,600 standards have been made and more than 100,000 standard sheets are sold each month. More than 1,000 German firms have made a systematically organized standards department a part of their administrative organization. In all these countries executive approval of the standardization plan is notable, and it receives careful executive attention and adequate financial support.

EXCHANGE OF INFORMATION

The American Engineering Standards Committee is actively cooperating with all the national bodies.

However far the movement toward international standardization may go, and quite apart from the desirability of actual international standardization in any particular subject, it is important that there be developed as full and free interchange of information as conditions will permit. The industries of each country can profit greatly by a study of the standardization work going forward in other countries. American industries, particularly, have much to gain from such a study.

The national bodies keep in active touch with each other by correspondence, by exchanging information in regard to new projects, by draft standards, and through general tendencies in the national work in the respective countries.

Not only is each national body enabled in this way to keep its working committees in touch with what is being done in the other countries, but through them this information is made readily available to the industries of each country.

CONFERENCES OF SECRETARIES

In order systematically to organize international cooperation, three conferences of secretaries of national standardizing bodies have been held, one in London in 1921, one in Zurich, Switzerland, in 1923, and one in New York in April, 1926. Following the third conference there was a meeting of executives in London during September, 1926. While these conferences were wholly unofficial in character, they constitute steps to bring about international cooperation in the broad field of industrial standardization.

As a result of the London (1921) and Zurich (1923) meetings, a periodical exchange of reports in standard form on the progress of work was established, as was a permanent international secretariat

at Zurich. At the third meeting in New York in 1926 plans were launched for the organization of an international standards association. A tentative constitution and set of by-laws were proposed and accepted, subject to ratification. The objects of the proposed body were "To lay the groundwork for international agreement upon standards by providing a medium for exchange of information among the various national bodies; to develop their general guiding principles; and to promote uniformity among their standards."

Certain details connected with the establishment of this proposed organization were further discussed at a meeting of executives in London during September, 1926. A few national standardizing bodies were not prepared to ratify the agreement projected at the New York meeting, and it was deemed expedient to postpone action for another year. Accordingly, plans were made to convene a meeting the latter part of 1927, probably at Rome.

INTERNATIONAL ORGANIZATIONS

There are two important international standardizing bodies—the International Electrotechnical Commission and the International Commission of Illumination. In cases in which sectional committees, operating under the procedure of the American Engineering Standards Committee, deal with subjects with which the international bodies are concerned, the American sections of the international bodies work in close cooperation with the sectional committees.

PAN AMERICAN CONFERENCE ON STANDARDIZATION

The first Pan American conference was held at Lima, Peru, from December 23, 1924, to January 6, 1925.

The general purpose of the Lima conference was to lay the ground for cooperation between the Republics of the Western Hemisphere in standardization, and to facilitate international commerce through standardization work. No attempt was made to undertake any technical work at the first meeting, but cooperative relations were established and means were provided for continuing study for future work.

The conference was attended by representatives from 13 countries—Brazil, Costa Rica, Cuba, Guatemala, Haiti, Mexico, Nicaragua, Panama, Paraguay, Peru, United States, Uruguay, and Venezuela. It was the general opinion that standardization can be used by the Latin Americans in three ways: First, in expediting and making more efficient their own industrial development; second, in improving the effectiveness of their buying in foreign countries; and third, and most important, in the development of better methods for producing and marketing their own raw products.

The formal resolutions of the conference, as an official body, recommended that there be a convention between the American States, providing for: Cooperation in standardization matters; the establishment in each country of one or more organizations dealing with standardization matters, either governmental or industrial, or mixed, as each may deem best; the use for the present of the Inter American High Commission, as the channel of communication; and the gradual compilation of a technical vocabulary in Spanish, Portuguese, English, and French.

The Second Pan American Standardization Conference was held at Washington, May 9 to 12, 1927. Seventeen of the American Republics were represented at this meeting, the program of which was confined to standards for use in the inter-American trade in coffee, cocoa, fruits, hides, certain oilseeds, and wool.

The formal recommendations concern the organization and development of the standardization work in the several countries; the establishment of appropriate agencies to fight plagues and pests affecting animal and vegetable production; the early acceptance of wool type sample standards; and the immediate development of uniform specifications for agricultural products and raw materials important in inter-American trade. The third Pan American conference is tentatively scheduled for Cuba not later than 1930.

CHAPTER IX

PUBLIC RELATIONS

The relations of the various industries and trades with the public become increasingly important each year. The experience of the Joint Committee on Agricultural Inquiry in 1921 demonstrated that there existed but slight appreciation of the complex problems confronting any one particular group. This ignorance of facts, coupled with the confusion resulting from the collapse of an overmanned and overstocked industry, awakened many trade associations to the need for cooperative effort in bringing about a better understanding and healthier trade conditions.

The public demanded an explanation of the high cost of living. Confidence in trade matters was generally lacking. Distributers came forward with a clean bill of health for their trade but invariably pointed a finger of suspicion at some other trade or industry. To the student of economics the most important result from this period of unrest was the sudden eagerness with which business turned to the collection of facts on all phases of its operations.

No less important is the growing public appreciation of the problems confronting business. The activities of the National Retail Hardware Association to provide material for school texts that will correct an erroneous conception of profit is an index of this trend. At the present time publishers have agreed to eliminate problems from arithmetic texts which leave an impression that profit is the difference between "buying cost" and "selling price." These activities tend to popularize the substitution of "margin" for the inaccurate term, "gross profit." The hardware group is now directing its efforts toward a revision of normal school texts.

Inventive genius and mass production have continued to pour forth such a variety of output that industries are confronted with merchandising problems that were unthought of in the era of antitrust legislation. "The new competition," so much discussed of late, is a bit of reality. The bankruptcy courts records have illuminating instances of its advent in the business mortalities of those industries which refused to recognize it. Competition has changed from the contest of merchant with merchant to a gigantic struggle of industry with industry for outlets, for space on the dealers'

shelves and in his window displays, and for a place in the consumer's budget. In this type of competition the trade association enters as a distinct force to center attention on the products of its membership without reference to any one member.

As a result of viewing the activities of trade associations in the field of public relations, their experience would indicate that success is attained, first, by having definite objectives thoroughly understood and agreed upon by the membership as a whole; second, in taking a long-time view in the developing of public confidence; and, third, in organizing a staff familiar with the technique and mediums for putting policies into action.

COOPERATIVE ADVERTISING

This type of cooperative effort is perhaps the latest development in the trade association field. Agnew, in his Cooperative Advertising by Competitors, notes as the first instance the campaign of the Hawaiian pineapple growers in 1908. He discovered references in Printers' Ink during 1910 to cooperative campaigns of 17 additional associations. A résumé of the situation early in 1926, made by the Periodical Publishers' Association, enumerated 47 associations. The following table sets forth the salient facts of the activities of these 47 associations and, in addition, the activities of 6 outstanding cooperative selling organizations.

Association	Per cent of industry represented	Amount expended annually	Assessment basis
Aluminum Wares Association	85–90	$100,000	Shipments.
American Face Brick Association			
American Leather Producers (Inc.)	94	200,000	Production (hides).
Sole leather		125,000	Do.
All other		75,000	Do.
American Malleable Castings Association	50	40,000	Production (tonnage).
American Walnut Manufacturers Association.	75	100,000	Shipments.
Associated Knit Underwear Manufacturers of America.	80	125,000	Production.
Arkansas Soft Pine Bureau	[1] 50	60,000	Shipments.
Associated Metal Lath Manufacturers (Inc.).	90	60,000–100,000	Production.
Associated Tile Manufacturers	70	85,000	Shipments.
Association of American Importers of Spanish Olives.[2]	[3] 90	100,000	Imports.
Association of Hawaiian Pineapple Canners.	100	400,000	
California Redwood Association	80	50,000–125,000	Shipments.
California White and Sugar Pine Manufacturers Association.	70	100,000	Production.
Cast Iron Pipe Publicity Bureau		72,000	
Common Brick Manufacturers Association	70	75,000	Production.
Copper and Brass Research Association	90		Voted each year.
Cycle Trades of America (Inc.)	90		Production.
Davenport Bed Makers of America [4]	90	73,000–139,870	Do.
Florida Dense Long Leaf Pine Manufacturers.	[3] 50	100,000–110,000	Do.
Greeting Card Association	75	65,000–125,000	Do.
Hardwood Manufacturers' Institute			Voluntary contribution.
Hollow Building Tile Association	60	50,000	Production (tonnage).
Independent Oil Men of America			Number of stations.

[1] Of State. [2] Figures for 1923–1925. Inactive 1926–27. [3] Volume. [4] Three-year period, 1922–1924.

Association	Per cent of industry represented	Amount expended annually	Assessment basis
Joint Coffee Trade Publicity Committee [5]		$360,000	Voluntary contributions.
National Association of Ice Industries [6]		60,000–65,000	Voluntary subscriptions (tonnage).
National Electric Light Association	90	50,000–100,000	Appropriation from dues.
National Knitted Outerwear Association [7]			
National Kraut Packers' Association	65	40,000–50,000	Consumption (tons of cabbage cut).
National Lumber Manufacturers' Association of Chicago.[8]	65		
National Paving Brick Manufacturers Association.	80	35,000	Production (tonnage).
National Terra Cotta Society	90	38,000	Pro rata.
Northern Hemlock and Hardwood Manufacturers Association.		105,000	Shipments.
Northern White Cedar Association	75	6,200	
Oak Flooring Bureau	90	100,000	Production.
Plate Glass Manufacturers of America		82,960	
Portland Cement Association	90	500,000	Do.
Red Cedar Lumber Manufacturers' Association.	95	50,000	Shipments (M feet).
Rubber Association of America (Inc.)[9]	90	56,000	Consumption (crude rubber).
Save the Surface Campaign			Based on gross sales.[10]
Sheet Steel Trade Extension Committee	72	281,129	
Society of American Florists and Ornamental Horticulturists.	80	250,000	Appropriation from dues.
Southern Pine Association	35	250,000	Shipments.
Southern Cypress Manufacturers' Association.[11]			Production (M feet cut).
Wallpaper Manufacturers' Associations' Educational Campaign.	90	150,000	Each printing machine.
West Coast Lumber Trade Extension Bureau.	[12] 50	500,000	Production.
Western Pine Manufacturers' Association	75	75,000	
Western Red Cedar Association	80	12,000	
COOPERATIVE SELLING ORGANIZATIONS			
American Cranberry Exchange (Inc.)	65	200,000	Sales (number of packages).
California Walnut Growers' Association	82	150,000–250,000	Sales (pounds).
California Fruit Growers' Exchange	75		
California Prune and Apricot Growers' Association.		200,000–300,000	
Prunes	63		
Apricots	57		
Florida Citrus Exchange	35	250,000–500,000	
Sun-Maid Rasin Growers of California		540,000	

[5] Five-year period, 1919–1925; $1,200,000 received from Brazilian growers, $600,000 from American. Discontinued April, 1925. Brazilian growers now plan to resume under own management.

[6] This sum was expended in 1922 campaign. The association is now engaged in raising $200,000 for a new national educational campaign.

[7] Bureau discontinued for present.

[8] Trade extension fund-raising campaign now in progress.

[9] Campaign of 1922. Purpose accomplished and advertising discontinued.

[10] A basis is provided for investment on the part of every branch of the industry, including manufacturers, wholesalers, retailers, and contracting painters. Manufacturers are asked to pay one-eighth of 1 per cent of gross sales.

[11] Association advertising discontinued temporarily. At present carrying on group advertising among individual members.

[12] Oregon and Washington.

The Periodical Publishers' Association notes the following outstanding tendencies in this field:

1. *Effect of cooperative advertising on practices within the industry.*—It would be absurd to say that the remarkable results shown by such activities as the "Save the surface campaign," as the Society of American Florists and Ornamental Horticulturists, the Associated Tile Manufacturers, the brick associations, the Greeting Card Association, and others which have shown such marked growth, are due solely to the external effect of the association advertising. In each of these cases the industry itself has become "market minded" and has been made alive to the possibilities of creating business rather than merely "swapping customers."

(*a*) Improving quality.—It will be noted that in a large number of these cases one of the requisites to successful advertising has been the standardizing and grading of the product and the effecting of uniform and improved quality.

Much the same effect has been realized in trade practices within the industry, although these are often less tangible and harder to point out.

(*b*) Giving service with the advertising.—Several associations have felt that a large part of their results have come from the fact that their advertising allows them to give service to the various elements in the industry and in the distribution system, thus making for improved conditions.

Examples of this will be noted in the Tanners' Council, Copper and Brass Research Association, Sheet Steel Trade Extension Committee, and particularly among those associations having to do with construction materials.

2. *Growth of the number within the industry participating in association activities.*—Of the associations where comparison was possible, 16 show an increase over the number represented when advertising started, 16 show no change, and 4 show a decrease.

3. *Effect of association advertising on the individual advertising of members.*—The effects in this regard seem to fall into two classifications. Where companies within the association are large and financially strong, the advertising of individual concerns is greatly stimulated. The background created by the association advertising adds to the profitableness of their own activities.

On the other hand, where the individual companies are comparatively small and not strong enough individually to make an effective national effort, the tendency is toward pooling their resources. In cases where the national association is made up of a group of small members, each doing a local business, there is also a tendency to stimulate local group advertising.

4. *Tendency toward a definite and adequate program over a period of years.*—The associations starting to advertise are doing so on a larger scale, with a definite commitment for continuation over a three to five year period. This is only logical since the advertising of most of these associations is essentially educational, and any educative process must of necessity consume time.

Those associations which have been advertising for several years, for the most part, while still having their advertising subject to annual renewal, are building their programs with the fixed idea of continuing indefinitely. A comparison of statements made by association secretaries in this regard now (1926) and two years ago very clearly brings this out. This is only logical since the advertising of most of these associations is essentially educational, and any educative process must of necessity consume time.

5. *Tendency to increase advertising expenditures.*—It will be noted that several of the associations previously reported have materially increased their advertising appropriation.

Of those mentioned in the first edition[7] that were then advertising, four stopped prior to January 1, 1925. Of these, however, three are now at work on plans for resuming advertising on an increased scale.

It will also be noted that the new associations for the most part started with much larger appropriations than those used by the earlier associations when they began.

MODE OF FINANCING

The most popular method of financing an advertising campaign has been in the form of an assessment on the basis of some unit of

[7] Experiences of Associations in National Advertising, issued by the Periodical Publishers' Association, New York City.

business volume, as, for example, gross sales value, production, or shipments. In not a few instances the funds have come from voluntary contribution, although the method is generally considered unsatisfactory. In at least two campaigns, one of which is still in the preliminary stages, the funds have been appropriated from income on regular dues.

METHODS AND OBJECTIVES

The objective of any advertising campaign naturally contemplates an enlarged or more stable market, but in many instances this objective has been a secondary consideration—at least it was not the keynote of the advertising appeal. Following extensive publicity on pure-food legislation, the canners of food products were faced with the problem of restoring public confidence in canned goods. The findings of extensive laboratory research formed the basis of a successful advertising appeal. The coffee roasters found it necessary to conduct an educational campaign on the healthful effects of coffee used in moderation.

The experience of the Associated Salmon Packers in 1926 affords a specific illustration of an association problem and the methods employed in its solution.

For years the red varieties of salmon have had preference in the market, because they were the first to be packed—the public knew no other kind. But "reds" now constitute only about a quarter of the average pack. More than half the entire pack each year is of the "pink" and "chum" (white) varieties of salmon, the pink comprising the larger proportion. Because of their abundance, pinks can be bought by the public at a much lower price than reds. The former measure up equally with reds in nutritive value, and many persons prefer the flavor of the pink salmon.

The war dislocated the foreign markets for salmon, and ever since that time there has been a heavy carry-over of pink and chum salmon—averaging above a million cases, and in January, 1926, amounting to over 1,500,000 cases.

The remedy selected for this situation was advertising to the Nation—

1. To advance the prestige of pink salmon, so that the public would not discriminate in favor of salmon of higher price.

2. To clear old stocks from the shelves of the grocery stores of the country, and in their replenishing, abolish the heavy carry-over, and so bring the new pack into a waiting market. This would mean reducing storage and carry-over costs to the packers and restoring the industry to a healthful condition.

A $200,000 initial campaign was authorized, confined to March, April, May, and June. Assessments were made on pink and chum

stocks then on hand, on a basis of 20 cents per case (5 cents per dozen cans). This represented less than 3½ per cent of the then wholesale selling price of pinks. The entire advertising campaign cost no more than it ordinarily costs to warehouse the stocks for three or four months.

The campaign began in the midst of the Lenten season, when sales are especially susceptible of stimulation. An important feature of the copy was the offering of $1,000, in 50 prizes, for the best pink-salmon recipes received by the Associated Salmon Packers up to August 31.

In advance of the launching of the campaign, telegraphic requests went out to newspapers in all the leading salmon marketing centers of the country requesting a quick survey among jobbers estimating the stocks of the various grades of salmon on hand, and the next day data were available showing where stocks were light and would need quick replenishing, and where stocks were heavy and needed the stimulus of advertising for moving.

Knowing that a national advertising campaign on pink salmon was coming, brokers, jobbers, and retailers put in orders. Pink and chum salmon sales, the packers estimated, were five times as great in the first six months of 1926 as in the same period in 1925. Sales during the salmon year from July 1, 1925, to July 1, 1926, were 750,000 cases more than the entire pack of 1925, and the carry-over that had been 1,500,000 cases January 1, 1926, dropped to less than 400,000 cases by July 1.

With the termination of the $1,000 prize recipe contest, replies from 60,000 women all over the United States were received, inclosing, it is estimated, 200,000 choice recipes for preparing dishes from canned pink salmon. All the prize-winning and "honorable mention" recipes are being assembled for publication in a "Prize Pink Salmon Cookbook" for wide distribution as one of the important elements in future campaigns.

The campaign also included window and store displays, the distribution of posters, dealer helps, and display material, and the featuring of salmon dishes by hotels and restaurants.

Innumerable examples of the experiences of other groups would serve only to show that each problem is peculiar to the particular trade or industry, and that it must be studied in that light by specialists in the field of advertising.

INFORMATION BUREAUS

The American Iron and Steel Institute is the representative organization of a basic industry whose commodity price fluctuations, commodity supply and demand, labor and wage conditions reach into

many other industries and form the basis of news in which all of the public, from the stockholder to the student of economics, is interested.

The American Railway Association, the Association of Railway Executives, the Bureau of Railway Economics, and the American Electric Railways Association, over their corporate names, give to the public facts and figures on the operation and development of the traffic system. The railroads, by their very existence, supply news. Car loading, new equipment, wages, income—which is vital news to the many thousand stockholders, and is indirectly interesting to all others—safety of operation, and other factors are phases so interwoven with the fabric of contemporary life that publication of such news is almost a matter of necessity.

Banking and finance embrace the American Bankers' Association and the Investment Bankers' Association of America. Many of their activities have a close bearing on public relations. The former, during its annual convention, provides a news service covering addresses by noted financiers. This service facilitates the reporting of meetings which are world-wide in their significance.

RELATIONS WITH TRADE PAPERS

Within the industry the usual means for disseminating information are the association's bulletin and the trade journal. Some publish journals or association organs, but the majority incline toward the trade paper as being more useful and influential, inasmuch as it circulates not only within the specific trade or industrial units but also reaches allied or associated groups.

There is a striking similarity between the trade paper and the trade association in that each exists to serve a specific trade or industry in such a way as to promote its welfare and to further its position among others and before the public. This similarity is evidenced by the fact that in a number of cases trade associations have come into existence through the efforts of trade papers, and, vice versa, some trade papers have been organized and promoted by trade associations.

In intratrade information the association executive has the opportunity to make the fundamental policy or idea of the association synchronize with the activities of the various members. In this connection an association publication or a well-edited trade paper published independently of the association, but in sympathy with its general aims, can be of real value as a factor in promoting public relations.

CHAPTER X

TRADE RELATIONS

The liberal attitude of Government toward industry has encouraged business men throughout the country to attack collectively the subject of trade relations and self-regulation. It would be difficult to list all the causes and kinds of trade abuses and unethical practices. The retailer has his complaints against the wholesaler and the manufacturer, the wholesaler has complaints against the manufacturer and the retailer, and the manufacturer has complaints against the wholesaler and retailer. A few of the most serious trade abuses and unethical practices which are complained of generally by manufacturers and distributers in practically every trade are the following:

Unjust returns of merchandise.
Failures to deliver at appointed time.
Misrepresentations of merchandise by salesmen.
Unreasonable cancellations.
Disregard of shipping instructions.
Salesmen promising things employers can not fulfill.
Selling competitors when line is stated to be exclusive.
Salesmen urging retailers to overbuy.
Failures to confirm orders.
Delivering merchandise not according to samples or to specifications in an order.
Accepting orders which can not be delivered.
Delivering more than was ordered.
Taking discounts not earned.
Delivering imperfect or soiled goods.
Unreasonable demands for concessions.
Delivering goods ahead of invoice.

The cost in money of these trade abuses is difficult if not impossible to estimate, but the experience of every trade association makes clear the enormous expense to business in the existence of lawless and unethical practices between producers and distributers. Obviously, there is not a single unethical business practice of those listed above for which some one does not bear a heavy cost. On returned goods and canceled order the manufacturer must take a loss when reselling to another customer. The retailer who has been oversold must resort to mark-downs, which decrease his profit and weaken his future buying power. Many of these disputes result in expensive litigation, and, even when the would-be performer of an unethical act is finally

prevented from performing it, the overhead cost in arranging for a settlement may be very large.

The more progressive manufacturing and distributing establishments have recognized the seriousness of the problem and have exerted efforts, so far as their own business transactions are concerned, to eliminate and reduce this evil. Subordinates, such as salesmen and buyers, have been educated to higher ethical standards and propaganda has been distributed to the customers of the establishments in order to reduce the abuses and unethical practices from which the trade suffers.

Many trade associations have built up methods adopted by their membership for the elimination of abuses within their trades. These methods vary with the nature of the abuse, the strength of the association's hold on its membership, and the degree of cordiality existing between the members of the association and their customers. Such attempts to correct bad practices within a trade usually result in the adoption by the association of uniform sales contracts, codes of ethics, and standards of practice, and in the promotion of arbitration for the settlement of disputes.

CODES OF ETHICS

The last four or five years have witnessed the preparation and adoption of a great number of codes of ethics and standards of practice by trade organizations, both commercial and professional. This has been a natural outgrowth of the gathering together of business men in the associations for the promotion of the best interests of their trade. In the past many of these codes of ethics were not reduced to writing but existed merely as a common understanding between the members of the trade; but the indefiniteness which arises from an unwritten code has led associations generally to attempt to define in writing the standards of conduct which should obtain in the business transactions of their members. The adoption of these codes has assisted greatly in the elimination of many unethical practices, but the codes themselves are not a complete solution of the problem of improper trade relations.

Some of the codes are of an ideal nature and set forth the golden rule of business to which every honorable business man should subscribe, while other codes attempt to regulate the actual dealings between buyers and sellers. Most codes, however, are too general in nature to serve as an effective means for the elimination of trade abuses and unethical practices in an industry. An examination of the by-laws and codes of ethics of more than 400 trade associations, made by the Chamber of Commerce of the United States, reveals

that only 67 of these deal with the subject of trade relations in a manner sufficiently precise to be regarded as effective means of regulation for business transactions.

Of the 67 associations selected, 64 have special provisions covering relations between manufacturers, wholesalers, and retailers; 43 have adopted a standard of practice toward cancellations and return of goods; 34 have adopted standard interpretations for terms of delivery agreements; 27 have regulations relating to commercial bribery; 17 provide for the use of uniform contracts of sale; 42 advocate uniform credit practice; 18 have central organizations to act upon trade complaints; and 35 have arbitration machinery or advocate arbitration for the settlement of disputes.

A code, whether it be business or any other, may mean much or little, and its effectiveness depends upon the extent to which its subscribers mean to make it a controlling factor in their business. Many of the smaller associations have adopted codes of ethics of a definite nature but lack sufficient strength to enforce them. Several trade associations have incorporated their codes of ethics or standards of practice into their by-laws, to which every one becoming a member must subscribe and violations of which subject the offending party to expulsion from the association. This form of enforcement may be used with success by those associations which, through the service they render, maintain a strong hold on their members. In such an instance a manufacturer or distributer hesitates to engage in an unethical practice which has been condemned by his association and which is prohibited by the code of ethics to which he has subscribed.

Another limitation to the usual code of ethics is that, while it attempts to define the relations which should exist between the members of an association, it does not define or govern the relations between a member of that association and a member of another association with whom he deals. The most serious trade abuses and unethical practices usually occur not in dealings between members of the same association but between members of different associations within the trade.

The Chamber of Commerce of the United States, in an attempt to define the conditions which exist in business dealings, prepared several years ago a set of principles of business conduct. These principles have been adopted by a great number of trade associations and business organizations throughout the country and have served as a basis in the formation of codes of ethics by many trade associations. A noteworthy example is the code of ethics adopted by the National Machine Tool Builders Association, which has incorporated under each individual principle illustrative examples of unethical practices

which are condemned by the trade. In this manner the principles are not only set forth in a clear manner, but also are illustrated by actual abuses which the association is attempting to eliminate.

COMMERCIAL ARBITRATION

Commercial arbitration offers another effective means of reducing unethical practices and trade abuses. The acceptance of this principle and the establishment of commercial arbitration machinery by many prominent trade associations has done much to eliminate many of the misunderstandings which occur in dealings between producers and distributers.

Arbitration is divided into two distinct classes, (*a*) voluntary and (*b*) involuntary (in the sense that an agreement to arbitrate is a requirement for membership). As might be expected, there are more instances in which arbitration is voluntary, but there are a good many examples of compulsory arbitration. Under the laws of New York and New Jersey settlement of disputes by arbitration is voluntary, but once the parties involved in a dispute have agreed to arbitrate, the courts will require specific performance. Efforts are being exerted to have a model State arbitration law adopted by the various States which have no arbitration legislation.[8]

The National American Wholesale Lumber Association follows a compulsory procedure, and a large number of trade disputes between its members and between members of the association and nonmembers have been settled quickly and satisfactorily by this method. Refusal to arbitrate is punishable by expulsion, and this applies in disputes between a member and a nonmember as well as between two members of the association. The American Spice Trade Association has incorporated in its standard contract of sale an arbitration clause which requires the arbitration of all disputes arising out of the contract.

The Grain Dealers' National Association has established a comprehensive set of arbitration rules covering such provisions as the appointment of national arbitration committees, rules of evidence, awards, and appeals. By resolution of the association, members who refuse to submit their differences to arbitration are subject to expulsion. This requirement has been enforced, and the Ohio Supreme Court sustained the expulsion of an offending member. Other trade organizations, such as the National League of Commis-

[8] The United States arbitration act approved Feb. 12, 1925 (43 Stat. L., p. 883), validates written provisions or agreements for arbitration of disputes arising out of maritime contracts or transactions and of those arising out of agreements for arbitration respecting commerce among States or Territories or with foreign nations, and provides for their enforcement in the Federal courts.

sion Merchants and the National Council of Lighting Fixture Manufacturers, also make the arbitration of disputes compulsory.

In view of the technical nature of the majority of the disputes which arise in the silk industry, it is not surprising that more and more of these differences are being submitted to a tribunal of experienced silk men. Detailed rules to govern transactions in raw silk, broad silk, spun silk, and thrown silk have been prepared by the Silk Association of America, and under these rules 35 cases were handled in 1925. The amicable basis for the settlement of disputes, arising from the fact that controversies involving technical points may have a more satisfactory hearing before men of the same trade, is another point in favor of arbitration.

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A number of trade associations provide standard contracts containing arbitration clauses. These clauses may be enforced under trade rules. In the States of New York, New Jersey, Massachusetts, Oregon, and recently California and Pennsylvania, the clauses are enforceable by law. This is also the case under the Federal arbitration act in admiralty transactions and in interstate commerce disputes involving over $3,000. Among the national trade associations which provide for the trade enforcement of an agreement to arbitrate, the Grain Dealers' National Association may be mentioned as an outstanding example. This association has established machinery extending from the national body to 19 affiliated State associations, making membership in each and all dependent upon willingness to arbitrate any disputes arising between members and to execute arbitral awards. Among other trade associations making arbitration of disputes obligatory may be mentioned the American Cotton Waste and Linter Exchange, the Interstate Cotton Seed Crushers Association, the National Association of Waste Material Dealers, the New York Coffee and Sugar Exchange, the Rice Millers' Association, and the Rubber Trade Association of New York.

Among the associations providing for the enforcement of awards (but not providing for obligatory arbitration) may be mentioned such associations as the Silk Association of America, the American Bottlers of Carbonated Beverages, National Knitted Outerwear Manufacturers, the Motion Picture Producers and Distributors of America (Inc.), a large number of real estate boards associated with the National Association of Real Estate Boards, certain stock exchanges, and others.

The American Arbitration Association is actively engaged in the promotion of commercial arbitration among trade associations and between trade groups to stabilize intertrade relationships. Through its efforts many organizations have adopted the principle of arbitration and have established machinery for its effective operation. The association has recently issued a yearbook containing reports on the activities of over 400 trade and commercial associations. This book, the first of its kind published in the United States, contains detailed data on arbitral activities of value to all business men interested in the practice of arbitration.

The growing use of arbitration is best indicated in the following tabulation prepared by the American Arbitration Association and indicating the approximate number of disputes arbitrated by some 40 organizations.

Latest records indicate that more than 200 national trade bodies either possess arbitral facilities or have indorsed arbitration and are actively interested in its development. This estimate does not include the large number of State and local organizations affiliated with the national organizations or local exchanges.

Association	Number of members	Number of arbitrated cases
Actors' Equity Association	10,000	56 in 1925.
American Fur Merchants Association (Inc.)	350	Average of 100 a year.
American Railway Association	590	2,402 (total to August, 1926).
American Spice Trade Association	122	50 to 100 a year.
Arkwright Club (cotton)	100	265 from 1911 to October, 1926.
Associated Dress Industries of America	700	Average of 50 a year.
Association of Dress Manufacturers (Inc.)	700	650 in 1925.
California Walnut Growers Association	[1]	6 to 12 a year.
Canners' League of California	45	12 or more yearly.
Cocoa Merchants' Association of America (Inc.)	48	59 in 1925; 23 in 1926.
Converters Association	100	400 from 1915 to 1925.
Cotton Yarn Merchants Association	54	12 in last three years
Council of Arbitration of Shoe and Leather Industry:		
National Boot and Shoe Manufacturers Association of United States.	350	
National Shoe Retailers Association		
National Association of Shoe Wholesalers of United States.	100	
Tanners Council of America	200	18 in 1920 to 90 in 1925.
Dried and Canned Foods Association of Chicago	68	Average of 30 a year.
Dried Fruit Association of New York	130	75 to 150 a year.
Dried Fruit Association of California	25	35 a year.
Federation of Graphic Arts and Allied Industries	8	30 a year.
Grain Dealers National Association	4,600	1,219 from 1902 to 1925.
Interstate Cotton Seed Crushers	500	25 to 40 a year.
Motion Picture Producers and Distributors of America	24	12,566 in 1926 ($2,712,495); 11,887 in 1925 ($2,542,544).
National American Wholesale Lumber Association	770	473 in 1925. (Amount involved, $225,979; total cost, $2,000 to $3,000).
National Food Brokers Association	796	1924: Under National Uniform plan, 55; Dried and Canned Foods Association of Chicago, 20; Dried Fruits Association of New York, 49. 1925: Through secretary of Wholesale Grocers Association, 90; Secretary of American Wholesale Grocers Association, 1; Dried and Canned Foods Association, of New York, 81; Dried and Canned Foods Association of Chicago, 35.

[1] Forty-four local associations having 4,500 members.

Association	Number of members	Number of arbitrated cases
New York Building Congress	1,572	20 in 1925.
National Wholesale Men's Furnishing Association	200	130 yearly.
National Wholesale Women's Wear Association of New York.	300	20 yearly.
National Wholesale Grocers' Association	1,400	21 in 1913; 21 in 1914; 47 in 1915; 28 in 1916; 22 in 1917; 12 in 1918; 54 in 1919; 39 in 1920; 114 in 1921; 53 in 1922; 46 in 1923 ; 57 in 1924; 97 in 1925; total, 611.
Real Estate Board of New York	1,800	25 a year
Rice Millers' Association	50	5 a year.
Rubber Trade Association of New York	100	95 annually.
Silk Association of America	463	18 in 1921; 25 in 1922; 14 in 1923; 33 in 1924; 34 in 1925.
United Women's Wear League	500	425 since 1918.
Western Fruit Jobbers	700	12 to 15 a year.

Arbitration has made a place for itself in approximately 100 different trades and professions. Such important commodities as canned foods and dried fruit, clothing and dry goods, cotton, fruit and vegetables, grain, groceries, hay, jewelry, leather, lumber, paint, oil and varnish, rubber, seed, silk, spices, and wool are partially or wholly protected from litigation by arbitral machinery set up in the trade; and the principle is well known and developed in professions such as accountancy, architecture, and engineering.

The eventual development tends toward arbitration groups, such as the already existing groups of grocers, canners, and food brokers; tanners and importers of hides and skins; theater owners and motion-picture producers; actors and managers; shoe manufacturers, wholesalers, and retailers.

TRADE RELATIONS COMMITTEES

Besides the individual efforts of trade associations to improve trade conditions by adopting codes of ethics and standards of practice and establishing arbitration machinery for the settlement of disputes, there have been several organized attempts to correct trade abuses.

A national committee on trade relations was appointed by the Chamber of Commerce of the United States in February, 1926, as an outgrowth of studies made by the national distribution conference on the causes and varieties of trade disputes. In general, the function of the National Trade Relations Committee is to urge upon and aid trade associations in the setting up of joint trade relations committees within their own membership for dealing with complaints and misunderstandings which arise between buyers and sellers. Specifically, the purposes of this committee may be summarized as follows:

1. To gather together the experience and best practice of all existing trade relations groups; to disseminate these facts in order that all such groups shall be acquainted with the best practices; and by these means eventually to simplify the future dealings between members of one group and another.

2. To inspire and to advise in the formation of a joint trade relations committee within each appropriate trade division, whose purpose shall be the ultimate establishment of a clearing house to investigate complaints of actions by producers or distributers which are not in accord with reputable trade practice.

3. To develop between manufacturers, wholesalers, and retailers joint agreements on standards of reputable trade practice, which shall serve as guides for the dealings between members of one group and another.

4. To bring about the adoption of arbitration in the settlement of commercial disputes.

The committee is composed of representatives of different merchandise groups—manufacturers, wholesalers, retailers, and the consuming public.

Trade associations usually consist of only manufacturers, or only wholesalers, or only retailers, while the violations of commercial ethics in the vast majority of instances take place in the dealings between manufacturers and wholesalers or between wholesalers and retailers. For this reason joint trade relations committees are necessary in order that the disputes and unethical practices which occur between different branches of the same trade may be studied collectively and methods may be devised for their elimination.

In the food and grocery trade individual trade relations committees have been established in the following associations:

American Grocery Specialty Manufacturers' Association.
American Wholesale Grocers' Association.
National Association of Retail Grocers.
National Chain Store Grocers' Association.
National Wholesale Grocers' Association.
Flavoring Extract Manufacturers' Association of the United States of America.
National Coffee Roasters' Association.
National Canners' Association.

The chairmen of these committees constitute a joint trade relations committee for the food and grocery industry.

In the coal industry trade relations committees have been established by the National Coal Association (operators), American Wholesale Coal Association, and National Retail Coal Merchants' Association. These three committees sit as a joint committee for the industry as a whole when the conditions or complaints warrant collective action.

A joint trade relations committee has been formed between the National Builders' Supply Association and the Hollow Building Tile Association for the consideration of such distribution problems and unethical practices as may be brought to the attention of the committee by members of either association.

The National Association of Retail Clothiers and Furnishers and the Clothing Manufacturers' Research Board have organized an

apparel industry committee and a joint board of arbitration for the purpose of improving conditions within the industry. This committee consists of 36 members—18 manufacturers and 18 retail clothiers, furnishers, and hatters.

In the women's clothing industry the National Wholesale Women's Wear Association has organized a wholesale and retail garment council for the purpose of providing means for conference and adjustment of mutual trade problems. This association also has established, jointly with the American Woolen and Worsted Manufacturers, a mills relations committee.

The candy trade of New York City has established a joint candy board composed of representative manufacturers, wholesalers, retailers, and salesmen. Its purpose is to study the problems met in each branch of the trade, to formulate trade rules, and to adopt remedies for unethical practices and misunderstandings which arise in dealings with buyers and sellers.

The National Knitted Outerwear Association is working along similar lines in the establishment of a complaint bureau, to which members and nonmembers of the association may report instances of unethical practices, while the National Association of Sheet Metal Contractors maintains a trade relations policy committee for the consideration of trade abuses and unethical practices.

CHAPTER XI

CREDIT AND INSURANCE DEPARTMENTS

CREDIT DEPARTMENTS

It is necessary to distinguish between the action of a trade association which collects and disseminates credit information for the benefit of its members and the effort to standardize credit terms. The former is informative only; the latter is at best a regulation of a highly competitive factor, which in its most unfavorable aspect might be viewed as an unreasonable restriction upon the freedom of individual competitive practice.

There seems to be no reason to believe that the law is in any way infringed by the action of a trade association which collects information relating to the credit status of customers of its members and supplies to any member accurate information concerning any specific customer on request, without comment and in the absence of understanding or agreement among the association members that they will neither sell nor extend credit to a delinquent customer of any member.

On this safe though limited foundation the custom among trade associations tends to develop extensions which at present have been neither approved nor condemned under the antitrust laws. One of these is the practice of informing members of the names of all debtors reported; the other is the erection of a collection agency.

With reference to the first it is to be noted that the legitimacy of the specific communication is the interest which a particular member may have by reason of his proposed relation to a particular customer. He has no interest in the fact that other buyers are in debt to other members. The communication of their status is purely voluntary. There is a sense, perhaps, in which a number of members may, by reason of being actual competitors, be equally interested at the same period in the status of a number of buyers or of one buyer. It is not clear, however, that this argument, any more than that of general convenience, will finally justify the distribution of a general debtors' list.

There are two sources of risk attendant upon this practice in addition to that which is always present and inseparable from this class of service, namely, erroneous or inaccurate statements which misrepresent the fact or do not present it accurately. These risks

are the civil suit for libel and public action for violation of the anti-trust laws.

When it appears that even correct information is circulated with an intent to injure a prospective buyer, the basis of a private action for damages appears also, and while this conduct on the part of a trade association would invite the private action, it is likely that it might, by the very nature of things, produce the elements of the other offense also; for the association represents an agreement in itself, and if it commits an unlawful act, it appears to be a combination for that purpose. All that is necessary is that the act appear to be an unreasonable restraint of trade. or a movement in that direction whose character is clear.

From the association point of view this intent to injure might manifest itself in either of two ways: First, an agreement or common understanding not to sell for cash or on credit, to anyone reported as a debtor so long as this status existed. In the absence of proof of an agreement, a concert of action shown would suffice to invoke the condemnation of the statute because this is boycott pure and simple. If, on the other hand, the agreement or concert of action, permits sales for cash and merely excludes the granting of credit, no such positive statement can safely be made. There is nothing from the United States Supreme Court on the subject directly, but it is rather difficult to read the opinion of that court in the maple-flooring case, which gives full force to the competitive value of the use of credit, without perceiving in an agreement or concert of action to withhold credit from the debtor of a single member something " which restricts the freedom of those engaged in commerce to base individual initiative (in the use of credit) on full information of the essential elements of their business." Usually the consideration given to this topic by text writers has been from the point of view which relates such an agreement to effect on prices. This seems to mistake the issue. If the use of credit is seen as the important factor which it really is in competitive marketing, the question is whether public policy permits those who, without such an understanding to refrain from it, would independently determine whether they would or would not use this competitive factor in a specific instance, to contract against their own competitive freedom.

And it might be noted in passing that this is the issue which is raised and not yet determined, by the effort to arrange standard terms of credit.

So far, then, as the final cases go or show, it seems lawful to follow the course of specific inquiry and reply. There is doubt as to the lawfulness of issue of the general debtors' list, but it appears unlawful to indulge in any understanding or follow any common course of action with reference to the use of this information.

A trade association, strictly speaking, is not an executive agency through which are to be performed any of the functions which are purely individual. And when a trade association assumes to collect, on behalf of its individual members, their individual open accounts, to that extent it becomes a cooperative association and departs from its true character.

Wholly apart from this consideration is the matter of legal status, and here it would seem that the issue would turn entirely upon the methods employed.

There seems to be no reason to believe that a creditor member might not properly inform the debtor that the fact of the unpaid account would be reported to the association. If he informs the debtor also that this record will be at the service of any other member from whom the debtor may seek to buy, the creditor is still within his clear right. If, however, he conveys the sense of invoking the group pressure upon the debtor, even though in so doing he misrepresents the group attitude, he is upon debatable ground.

The association as a group has no legal right in this matter which does not pertain to the individual member. It has, in fact, one distinct disadvantage. The cooperative element fuses the loose-knit membership of a trade association into one solid body so that there is no longer any doubt about agreement. In this position, the association should avoid the semblance, as well as the actuality, of a threat of group pressure; for collection by coercion is not permitted to the group any more than it is allowed to the individual.

In the last analysis it may be said that the purpose of a credit bureau operated by a trade association is to enable the individual member to avoid making mistakes in the use of credit—not to preclude the exercise of his judgment and not to assure him against the effects of such mistakes as he may make.

The association credit service does not follow any set type or form. The organization and service features have been for the most part specifically developed to meet particular conditions and, hence, vary greatly. Size of the association, location of the members, type of customer, and size of sale all play a part in deciding the nature of the service which can best be rendered by the trade association.

Some associations have reported their credit activities as extending only to the collection and dissemination of information relative to Federal and State laws dealing with collections, bankruptcy, conditional sales, and the like, and of proposed changes in such laws. In most associations credit conditions and practices receive consideration in conferences where specialists, either from the membership or outside, are engaged to address group meetings on this subject. Such conferences frequently lead to collective action in securing the services of commercial agencies for the handling of association credit prob-

lems. In this manner four textile associations and an automotive group have placed their credit service problems in the hands of a commercial agency. As a preliminary step, each member furnishes the agency with a list of all active customers and prospects. A complete report is furnished on the entire list, followed by additional reports as the financial status of the account changes. The service also includes a trade survey, which is revised monthly. Other credit organizations divide their memberships along trade lines, the separate divisions representing in many instances a complete trade association group, although membership in the credit group is an individual matter.

The National Association of Credit Men, with more than 30,000 members, is divided into 20 trade groups, each holding separate conferences. These group divisions are:

Boots, shoes, and allied lines.
Building materials.
Clothing.
Confectioners.
Drugs, chemicals, and allied lines.
Dry goods, notions, and allied lines.
Electrical and radio supplies.
Furniture and allied lines.
Groceries (manufacturers).
Groceries (wholesalers and jobbers).
Hardware.
Heating and plumbing.
Implements, vehicles, and allied lines.
Iron and steel.
Jewelry.
Newspapers.
Paints and varnish.
Paper supplies and allied lines.
Petroleum.
Stationery, printing, and office appliances.

Augmenting the work of special purpose credit organizations and the information of commercial credit agencies, many trade associations maintain their own credit bureaus equipped to supply promptly credit information which forms a reliable basis for credit, and to these same associations add a collection service. So valuable has this credit service proved that special corporations affiliated with a trade association have been formed in some instances for the sole purpose of handling credit problems. The Credit Corporation of the National Lumber Manufacturers' Association, representing 13 affiliated associations, maintains a credit and collection service and issues semiannually a "blue book" of credit ratings, supplemented by frequent special reports.

The Motor and Accessory Manufacturers' Association issues daily, monthly, and periodic credit bulletins, special reports, and grading of individual accounts. Answers to requests of individual members and documentary transactions number several hundred thousand annually. The service has been in existence 15 years.

The National Boot and Shoe Manufacturers' Association since 1906 has operated an exchange of ledger experience and has facilitated the correction of trade abuses.

The credit exchange bureau of the Radio Manufacturers' Association issues monthly a list of delinquent accounts as reported by the members. This delinquent list is supplemented by an exchange of ledger experience on request.

The credit service of the Steel Barrel Manufacturers' Institute embodies the following features:

1. A monthly report on all accounts 90 days or more past due.
2. A monthly report of all settlements by trade acceptance or note.
3. Inquiries are received currently from members regarding the credit of certain prospective purchasers, and if no information is available in the permanent credit record an inquiry is sent to all members for a report of their experience, if any, with the prospective purchaser. As fast as any information of a valuable nature is received, it is forwarded to the inquiring member.
4. When an account is 90 days old it may be reported to the institute, and a letter is written to the debtor stating that unless settlement is made by a certain date it will be necessary to report the situation to all members.
5. If settlement is not made by the date specified in the first letter, all members are notified, and the debtor is written a second letter stating that if settlement is not made by a certain date the account will be turned over to attorneys for collection. This plan has been found very satisfactory, as it brings in the great majority of settlements without the usual cost of collection or bringing suit.

The National-American Wholesale Lumber Association credit and collection bureau is deemed by the members the association's most valuable visible asset. Over 40,000 reports on wholesale buyers are on file, available for immediate transmission to the membership. Because the reports are confined to the lumber trade and are restricted in circulation to members, the information supplied would not otherwise be available. In 1925 nearly $1,000,000 in claims was paid and adjusted through the collection department. The members feel that the specialized nature of the work and the internal knowledge possessed by association representatives accounts for the success of the department and its low cost to the membership.

INSURANCE DEPARTMENTS

Approximately 100 associations are engaged in solving the varied insurance problems which confront their membership. This interest in insurance is threefold—an educational campaign directed at the membership, constructive research into insurance legislation, and the public interest phase of reduction of waste.

Another phase of insurance activity practiced by trade associations is concerned with actual insurance coverage. Some associations have mutual fire insurance companies or have arranged through other mediums to furnish insurance to the members. In connection with the National Lumber Manufacturers' Association an interinsurance exchange is operated which furnishes lumber and sawmill fire insurance and maintains an inspection service. A similar exchange on the reciprocal or interinsurance plan is operated by the National Retail Lumber Dealers' Association. A very close working arrangement exists between the Millers' Mutual Insurance Companies and the Millers' National Federation. The National Shoe Retailers' Association has operated a mutual insurance company for 20 years. Ten mutual fire insurance companies and one hardware mutual liability company are reported by the National Retail Hardware Association as extending their full service to the association membership. The great majority of association insurance activities, however, are confined to the subject of rates, the association striving to secure proper risk evaluation and rate levels.

Group insurance has received the consideration of association insurance committees, and in cooperation with insurance companies various plans have been placed before the memberships. Frequent educational campaigns have been waged to acquaint members with the many important phases of this type of insurance.

INSURANCE EDUCATION

A business man upon being sold an insurance policy may put it away without reading it and thereafter pay the premiums as a matter of course, seldom referring to the policy unless it is to make a claim. This implicit confidence in the insurance company is general, yet there are few other business transactions in which the business man does not take a more active interest. For example, if he makes a contract he is very careful to see that the written form is exactly what he had in mind; or if he purchases a bill of goods he is very careful to inspect it upon arrival to be sure it is according to specifications. The trade association may well urge its members to read their contracts, understand the contents, and use the various services

made available by insurance as an institution. Some phases of insurance are of sufficient interest to business men to justify the preparation of special pamphlets by trade associations.

INSURANCE AND REDUCTION OF WASTE

The insurance premium is based to a great extent on losses. Insurance as an institution has constantly been increasing its service in assisting business men in the reduction of losses. It is known, for instance, that:

1. In 1922 there were over 1,000,000 deaths in the United States. Life conservation work indicates that approximately more than one-third of these deaths might have been postponed to subsequent years.

2. The fire loss in 1922 reached the enormous sum of $500,000,000. Every bit of productive energy represented by this sum is gone forever. Fire conservation methods clearly indicate that much of this loss should never have occurred.

3. The country loses each year about 250,000,000 working days on account of illness. Experts tell us that nearly one-half of this loss might be prevented through simple precautions or treatment.

4. About 575,000 accidents occur annually, each of which involves disability of over four weeks. Included in this number are 23,000 deaths. A large steel organization is reported to have saved hundreds of thousands of dollars yearly by intelligent safety methods.

Trade associations are taking active steps toward the reduction of losses. It frequently happens that even though full insurance is carried, at times certain intangible uninsurable losses result. For instance, customer's good will and future trade may be lost through the destruction of a plant by fire. Industry and commerce are vitally concerned in this matter. Through the active support and cooperation of trade associations it is possible to reduce this waste. The national fire waste council of the United States Chamber of Commerce, for example, received splendid cooperation from trade association members during fire prevention week. Such representative associations as the Wholesale Sash and Door Association, Laundryowners' National Association, Prepared Roofing Association, Association of Ice Cream Supply Men, American Petroleum Institute, New England Shoe and Leather Association, National Association of Stove Manufacturers, and the Foundry Equipment Manufacturers' Association were particularly active.

Losses due to theft and pilferage, poor packing, or crating swell the large sums of money which are the result of waste. All exporters are naturally interested in this. The American Manufacturers' Association has a special committee investigating theft and pilferage. The American Exporters and Importers' Association

also has an insurance and pilferage committee. These committees have been doing many constructive things to bring about a reduction in those types of waste more or less peculiar to foreign trade or ocean shipping.

The American Zinc Institute has been carrying on many activities in the field of conservation. It operates a hospital for the care of injured workmen of 190 mining plants in which it is interested, and maintains a welfare house and free clinic. Its member companies paid $5,000 of the $8,000 necessary for the purchase of a combination hose, pump, and chemical truck, located at Picher, Okla. One-half of the maintenance of the fire department is paid by the mining companies, which in addition maintain efficient fire-fighting facilities on their own properties. Accident prevention is a matter of interest because of its importance as a factor in operating costs, as well as for humanitarian reasons.

The matter of reducing accidents and improving sanitary conditions is another field of activity which presents excellent opportunities for the trade association. It is not only a factor in production but is also an element in costs. The Laundryowners' National Association has been interested in the matter of reducing accidents in laundries and is now working on a national safety code. This field of trade association activity is discussed in greater detail in Chapter VIII. The trade association is in a position to concentrate on specific problems confronting its membership in the fields of health conservation and fire and accident prevention. In addition, it can develop standards which may be of real value to those interested in their particular lines of endeavor.

The Southern Pine Association maintains a bureau whose function is to help members reduce the number of accidents among employees and to improve physical equipment from a safety standpoint. Numerous other illustrations of trade association activities might be indicated.

The fire insurance committee of the American Gas Association has in course of preparation a self-inspection blank which is designed to measure the hazards of gas plants. In addition, a series of articles on fire prevention will appear in the monthly bulletin of the association.

The work also being done by many chambers of commerce in insurance and in the reduction of waste is indicative of the importance being attached to these matters by American business men and of the opportunities for service by trade associations. The Indianapolis Chamber of Commerce, for instance, accomplished a marked reduction in the Indianapolis fire-loss ratio in 1921. The Phila-

delphia Chamber of Commerce also is investigating fire causes, and is making recommendations for fire prevention. The chamber was instrumental in helping to bring about the introduction of the study of fire prevention in the schools of Pennsylvania. Its fire prevention and insurance committee also aided in the preparation of a standard chimney ordinance, and recommended that legislation be enacted looking toward the punishment of persons through whose gross negligence fires occur. The Chicago Chamber of Commerce maintains a special division which concentrates on the reduction of accidents and fires. Hundreds of chambers of commerce were active in the last fire-prevention week campaign.

CHAPTER XII

EMPLOYER-EMPLOYEE RELATIONS

No individual business can attain its fullest possibilities unless its physical equipment, such as machines, buildings, capital, and the like, is paralleled by an efficient personnel which, in addition to all technical requirements of skill and experience, is based upon the recognition of the importance of loyalty, teamwork, and a clear understanding of the basic economic principles around which all successful business and industry must revolve. If manipulative skill, interest, or incentive is lacking, best results are likewise lacking. Each one of these has to do with the relations between employer and employee. The importance and value of human relations are even greater if we consider the supervisory aspect, when men direct the activities of other men.

MAJOR FORMS OF LABOR LOSSES

An executive of the associated liability insurance companies recently said that their experience is showing the most important question in the reduction of accidents to be not in the development of additional mechanical safeguards, already highly perfected, but in the human end—to bring all engaged in business and industry to think in terms of safety and conservation of human life. This is just one example of many wherein mechanical development has yielded first place to the education and training of the man with an intensiveness and thoroughness to parallel that which has been devoted to man's servant—the machine.

The pertinent question asked by both the large and the small industry is, what and where is the logical point of attack to help existing conditions—to assist in reducing our annual accident bill and costly labor turnover; to accomplish the elimination of waste here and there, the boosting of production from the 60 and 70 to the 80 and 90 percentages of efficiency, the proper training of workers and understudies, the development of teamwork and morale; and, in general, to improve human relationships which have much to do with final results, not only in production but in establishing a happy, contented, and prosperous community?

Trade associations have many and varied activities depending upon a number of conditions, but there is one subject of common

interest to them all without exception—that of relations between employer and employee. The better relations existing between employer and employee throughout the country to-day are without doubt due in a large measure to the more intelligent handling of human relations problems—to employer and employed sitting across the table from each other and ironing out misunderstandings. The employer is closer to the workers and their problems than he has been for years. In fact, both are in agreement upon the basic theory of wages and production. There is an increasing cooperation between management and men toward more effective production, and thus the reaching of common goals.

The following is a typical list of subjects coming up every day for discussion and decision in business and industry usually listed under employer-employee relations. One or more of these subjects may be most important for the members of one association, while an entirely different group may be most important in another organization.

Employment and management:
- Closed and open shop.
- Company regulations.
- Employee publications.
- Employee representation or works councils.
- Employee tests.
- Employment routine.
- Immigration.
- Job analysis.
- Job specification.
- Labor turnover.
- Legislation—employer-employee.
- Time and motion study.
- Veterans, industrial.

Living and working conditions:
- Athletics in industry.
- Cost of living.
- Employees' associations.
- Health and hygiene.
- Hospital and medical.
- Hours of work.
- Housing.
- Lunch rooms.
- Rest periods.
- Safety.
- Savings plans.
- Summer camps.
- Stores, plant.
- Ventilation, heating, and lighting.

Training and education:
- Apprentice training.
- Employee economics or business facts.
- Executive training.

Training and education—Continued.
- Foreman training.
- Libraries, plant.
- "New American" instruction.
- Office training.
- Sales training.
- Shop or vestibule training.
- Visual instruction.
- Vocational education.

Rewards or incentives:
- Disability compensation.
- Insurance.
- Mutual benefit.
- Pensions.
- Profit sharing.
- Promotion and transfer.
- Stock ownership.
- Suggestions.
- Vacations.
- Wages.
- Wage payment methods.

INFORMATION AND RESEARCH

The employer-employee relations service of a trade association renders its members valuable assistance in bringing to them the ideas and experiences of others. Many of the ideas, policies, and methods in one plant are applicable to another plant of the same industry, or even to different industries.

Some associations not only obtain information from their own members but watch the policies and practices in other lines of industry for suggestions which might be of value to their membership, making available information on some of the common industrial relations problems, such as wages, hours of work, labor turnover, educational and training practices, safety, and vacations. The Metal Manufacturers' Association of Philadelphia, for instance, collects and tabulates labor turnover figures of its members monthly and issues them to the members under key numbers for comparison and study.

It may be entirely unnecessary to issue many publications of its own if the association keeps closely in touch with what is published and available along lines of interest elsewhere. Through the utilization of information collected and prepared by others, duplications and waste of time may be partially avoided. For example, it would appear to be a duplication and waste of energy for a trade association to publish an extended treatise on the fundamentals in the development of industrial foremen, as publications of several organizations contain a considerable amount of information on this subject. The Chamber of Commerce of the United States, for instance, has

issued or has in preparation bulletins on foremanship, apprenticeship, employee representation or works councils, employee economics or business facts for employees, payment of employees by check, etc. Material has also been published by other national associations. Where information is prepared and is available, the information service of the individual trade association then becomes one of knowing where such information is available and passing it on to its members.

With information and facts at hand, the member is in a position to take action more intelligently. Having such information, he usually prefers to determine his own action.

As to the research activities of trade associations in the field of employer-employee relations, the question would be whether the problem presented for research is a general one which has already been studied by some other organization, or whether it is a problem peculiar only to the industry which the association represents.

If it is a general problem—that is, one not peculiar to the particular industry in question but applicable to many or all industries—it might be well to determine if, in the interest of general efficiency and economy, some organization representative of business and industry in general might not find it worth while to study it in lieu of several less complete efforts. If the problem is peculiar only to the industry in question, it may be a decided advantage for the trade association to conduct the research itself.

TRAINING AND EDUCATION

Training and education in industry have undergone changes as demands have changed. Vocational education as a national problem was placed on an organized basis under the Smith-Hughes Act passed by Congress in 1917. Shortly thereafter what was known as foreman training made its appearance both as a public and as a private activity. For several years following the war various types and kinds of foreman training were promulgated and became popular. Recently training for better foremanship, or training supervisory forces, as some prefer to style it, began to take on a permanent form, until now an almost unanimous opinion among executives exists as to its value when conducted in the proper way. During the summer of 1925 it was possible to list in the United States only a few more than 100 organized courses in foremanship conducted during the previous year, while in June, 1926, 324 such courses were reported.

Apprenticeship instruction has undergone changes during the past few years but it is still a vitally important problem and is occupying the serious attention of a number of trade associations as well as individual employers. During recent years there has been a tendency

toward cooperative work in the field of apprenticeship—an increasing tendency to utilize public educational facilities for the theoretical instruction. Typical of the associations active in this field are the United Typothetæ of America, the National Trade Extension Bureau of the Plumbing and Heating Industries, the National Founders' Association, the Associated Tile Manufacturers, the Granite Industries, the Mason Contractors' Association of the United States and Canada, the Wall Paper Manufacturers' Association, and the National Metal Trades Association.

Representative of the various plans of cooperation in the training of apprentices are the Wisconsin State apprenticeship plan in cooperation with local associations in that State; the apprenticeship commission of the New York Building Congress; the Boston Commission on Apprenticeship for the Building Industry; the New Jersey Building Congress; Niagara Falls, N. Y., cooperative apprenticeship training program for the building trades; a cooperative effort in Cleveland, Ohio, carried out through the city department of vocational and practical arts education of the Cleveland Chamber of Commerce, and committees from various industries and organizations.

The problem of vestibule training, primarily a shop job training proposition, enjoyed its greatest popularity during the war period, when a number of trade associations were particularly interested in this phase of training.

Among the newer developments in training and education in business and industry are the experiments in employee education in fundamental business economics, or, as some wish to term it, business facts for employees. This activity is growing rapidly, and some of the experiments have been in practice almost a sufficient length of time to justify a permanent status and definite conclusions as to its value. The Chamber of Commerce of the United States is now making a survey of these activities.

The Federal Board for Vocational Education has cooperated with associations in developing training for the following industries among others: Wall paper, retail grocery, granite, building, and laundry trades.

The National Association of Retail Grocers has set up a separate department under the name of "Bureau of Business Training" to organize agencies of training for the more efficient operation of retail grocery stores. The association provides textbooks and instructional material to local associations at a nominal cost. The local association, generally in conjunction with public-school officials, arranges for group study of the employees.

Informal instruction methods characterize these group meetings. The various topics are discussed following the association outline as set forth by the instructor. At the conclusion of each session the group leader gives each member a copy of prepared notes which summarize the topic that has been discussed. At the next meeting any member may refer to any previous point upon which he desires further discussion. Advanced courses also are available in sales promotion and management. As mentioned above, these courses were developed in conjunction with the Federal Board for Vocational Education.

Some of the associations where special training is required have found employment exchanges of assistance to their member firms. Especially is this true where other associations maintain apprenticeship or training schools for workers in their respective lines.

The manner in which the various activities previously enumerated may be combined and carried on by a trade association is illustrated by the achievement of the Lake Carriers' Association. The welfare plan of this association was inaugurated in the spring of 1909. It includes the procurement of men for the vessels through assembly rooms maintained by the association in the principal ports. These assembly rooms are in charge of commissioners employed by the Lake Carriers' Association and are operated day and night throughout the season of navigation. Effort is made to have these assembly rooms attractive to the men and they are supplied with daily papers, magazines, phonographs, amusement and writing facilities, and baggage check room.

During the navigation season they are open to all men desiring to obtain employment on the vessels in the associations' membership. In the winter, when navigation on the Lakes is suspended, they are used as clubrooms, and only such men as have current registration with the Lake Carriers' Association are permitted their use. In addition, clubrooms are open in winter for the licensed officers at Buffalo, N. Y.; Cleveland, Ohio; Detroit, Algonac, Marine City, and Port Huron, Mich. Officers' rooms also have billiard tables and facilities for dancing parties and other forms of social entertainment.

In the winter there are conducted for the benefit of registered men schools in navigation and marine engineering at Cleveland, Ohio, and Marine City, Mich. These are attended by men seeking original licenses and by officers desiring to secure a raise of grade of the license held.

The only charge made to the men is an annual registration fee, graded from $1 for unlicensed men to $5 for masters. No charge is made to men or to vessels for the furnishing of crews. Vessel officers

are not required to obtain their crews through the assembly rooms but are requested to have all men who are engaged from other sources report to the assembly rooms before leaving port, for record in case of disaster. Employment is generally sought through the assembly rooms as a matter of convenience. Men are not required to be registered with the association, but on account of its advantages about 90 per cent of the men register voluntarily.

The advantage of registration consists mainly of the free use of the assembly and clubrooms and the compilation of service records, which has come to be recognized by the majority of the men as distinctly to their advantage as giving preference in vessel employment, in obtaining credentials when seeking employment elsewhere, in the procuring of naturalization papers, licenses, hospital service, and war bonuses, and in many other ways.

Financial benefits are provided for registered men when death or total disablement occurs as a result of accident on board vessels or in the performance of duty for such vessels, such benefits ranging from $75 to $500, according to the grade of employment.

Prevention of accidents is promoted by the organization of ship safety committees on board the boats. These committees consist of the lowest licensed officer of each end of the boat, a wheelsman, a deckhand, an oiler, and a fireman or a coal passer, thus instilling in the minds of men most directly and commonly involved in accidents the habit of thinking in terms of safety while in the performance of their duties. Meetings are held monthly, and recommendations as to equipment and safe practices are sent to the secretary of the Lake Carriers' Association, where they are analyzed by a committee of active masters and chief engineers. Such as are worthy of adoption and practicable for general application are embodied in a book of recommendations distributed to all vessels. Men are paid $2 for attendance at each meeting, and a $10 bonus is paid at the end of the year, provided no accident has occurred on the vessel during the season which necessitated a man's leaving the ship. Many men express willingness for the good of the service to perform this duty without compensation.

In one fleet this bonus has been paid for four consecutive years to the committees on 10 steamers, for three consecutive years on 8 others, and for two years on 10 more. In 1925, 39 of the 61 steamers in this fleet received the bonus.

In another fleet 11 steamers have received the bonus for three consecutive years and 4 others have received it for two years. In 1925, 24 of the 42 vessels in this fleet passed through the season without personal injury, and the committees received the bonus.

Attention is given by a special committee of vessel managers to sanitary conditions on shipboard and the sanitary handling and care

of food supplies both on the ships and in the supply houses. No distinction is made in food supplies served to officers and men, and the same standards are maintained in dining rooms and mess rooms. Vessel owners have much pride in the quality and quantity of food furnished and in the comfort, cleanliness, and sanitation of quarters.

Every incentive is given men to make service continuous throughout the season, and many are paid bonuses and railroad fares for such service. Encouragement is also given to men to save their money by inaugurating on the vessels a system by which the men can bank their wages without going ashore for the purpose. Deposits during the season of 1926 aggregated over $1,500,000. Prizes are awarded each season to the vessel showing deposit of the largest percentage of wages earned. The crew of the vessel winning the prize in 1926 deposited over 80 per cent of the ship's pay roll and 91 per cent of their individual earnings.

CHAPTER XIII

TRAFFIC AND TRANSPORTATION SERVICE BUREAUS

Trade associations often help to bring about efficient shipping methods. They assist not only their members but the public and the carriers by providing maximum loads for cars. Again, there are the related problems of better packing methods and the reduction of loss and damage claims. A trade association can well lend the weight of its influence to general movements of this kind. Shippers will often listen to the advice of their association groups when they would discount or ignore the pleas of the carriers made direct to them; although, to the credit of most shippers in and out of association, they are usually anxious to do their part in movements which make for better shipping.

The association traffic department provides the medium through which a single opinion, instead of a multitude of opinions, may be presented to carriers and regulating bodies. Such unified opinions are frequently called for, sometimes in cases where the industry or trade asks for changes, sometimes where others ask for certain action, and sometimes where mere force of circumstances requires a decision. In many cases the members of the group would prefer that no action be taken on some specified matter, but so long as some action is to be taken, it behooves the association to see that the action is as favorable as possible to the public and to its own interests. For example, if a minimum carload weight is to be established, the members of the association try to agree among themselves what minimum weight would best serve the interests of the railways, the members, and the public. Sometimes, naturally enough, this means compromise among the members.

Questions of transportation may well be handled through the standing traffic committees of trade associations. Frequently, however, associations must meet many complex traffic problems requiring the services of a traffic expert, or perhaps making desirable the creation of a special or separate traffic association. The Southern Hardwood Traffic Association is an outstanding example of such a special association.

The best argument for the serious consideration of traffic department organization in a trade association lies in the results already

attained by such organizations. Typical examples are the National Automobile Chamber of Commerce, the Casket Manufacturers' Association, the Pacific Coast Shippers' Asssociation, the Silk Association of America, the National Petroleum Association, and the Southern Pine Association.

Traffic departments of associations of lumber producers have paid for themselves many times over in various ways, including the rendering of assistance in adjusting lumber and lumber-product rates and classifications on a more equitable basis. While certain of these activities have been in the direction of securing reduction of rates, it is equally true that the cooperation of trade association traffic departments with carriers and with the Interstate Commerce Commission in removing unequal and unscientific classification provisions has meant large benefits to the industries.

In giving a few examples of traffic departments that have proved valuable features in trade-association accomplishment it is not intended to suggest that every association should have a traffic department. There are many cases where the nature and scope of the industry or trade are such that an association department to oversee traffic and transportation matters would be unnecessary. The following are some of the cases where a traffic department may not be necessary: (1) Where the organization is what may be termed "local" in its nature, as one having membership within the boundaries of a single city; (2) where transportation of the products is largely by express and parcel post; (3) where the members of the association feel that a traffic department does not fall within the scope of their association's activities. In the last case the situation should be examined to ascertain what the possible benefits might be rather than to see only why a department should not be established.

DECIDING ON A TRAFFIC DEPARTMENT

Preliminary to a discussion of the relations of the traffic department or traffic bureau to the trade association, it will be well to note some factors that should be given weight when considering the establishment of a traffic department.

As trade associations are formed for the purpose of cooperation and for joint action, the extent to which a traffic department will fit in with existing lines of activity should be ascertained before determining the scope of traffic work to be done by an association. It is first necessary that the members of the association formulate a traffic policy which will be in harmony with its general policy of operation and its already established major activities.

The territorial extent of the association will have some bearing on the nature and extent of the work that can be attempted. Thus,

to an organization of national range will be presented different problems from those presented to an organization which works within a more limited area.

The National Petroleum Association has organized traffic groups in each of the important oil refining centers where its members are located. Meetings of these local traffic groups are held every two months, with such additional special meetings as may be required to consider emergency matters. To enable the traffic attorney to suggest to the chairman of the various groups particular matters for discussion, the regular bimonthly meetings are assigned for the same dates. These assignments are made in the fall of the year from the head office of the traffic department. In addition to the local meetings, three joint traffic meetings, at which the traffic attorney presides, are held during the year.

To some extent the nature of the commodities purchased, produced, or sold by the members of the association and the nature and extent of the competition that they have to meet will have a bearing on the matter. As a rule, the more competition a commodity has the more essential the traffic department.

A consideration which will have a vital bearing on the establishment of an association traffic department is the extent to which individual members have traffic departments of their own. Members who have such departments will consider the association traffic department from two standpoints: (*a*) The extent to which the association traffic department will duplicate or supplement what the individual departments are already doing and (*b*) the possibility that the association traffic department will conflict with the necessary activities of the individual departments. Relative to this latter condition, an association traffic department is often established with the understanding that the individual and association traffic departments cooperate just as far as possible to the best interests of the individual members and of the industry or trade as a whole.

The members of an association will generally find it necessary to keep in closer touch with the work of the association traffic department than is the case with the executives of the individual concern and the latter's traffic department. Generally, the traffic manager for the association will be presumed to be capable of conducting his department without detailed instructions from the association executives. This condition has led to the forming of association transportation committees, created for framing broad policies to be followed in transportation and traffic matters.

If there are individual traffic managers in the association, the committee may be made up of these officials; if there are no traffic managers readily available, the committee will necessarily be composed of other representatives of the individual members. Where it has

been found that the association does not need a traffic executive or manager, the transportation committee may find it desirable to employ outside assistance to carry out some particular policy.

The traffic department of the National Petroleum Association has, through the retention of a traffic expert and attorney, made its department practically self-supporting. Rate cases brought by the members are of sufficient size and importance that the retention of a 15 per cent fee on all recoveries under $5,000 and 10 per cent on all amounts over that figure defray the operating expenses of the office. The association follows the policy of exempting from all percentage fees the first $600 secured for any member in any year, this being the amount of the member's annual dues. Many members secure reparations each year in excess of their annual dues.

To shippers and receivers of goods the matter of traffic services is often as important as rates, and in some instances more important. It may be that the individual member who is opposed to an association traffic department concerning itself with rates may welcome a department which will render assistance in such matters as securing an ample car supply or adding to or improving traffic services.

REGIONAL ADVISORY BOARDS

The development of the regional advisory boards of the American Railway Association is one of the most important developments among trade association activities. These regional advisory boards are composed of shippers, receivers, and bankers having to do with the movement of freight throughout the country. They form a common meeting ground between the shippers and the railroads for the better understanding of transportation questions. Trade associations representing products and commodities transported in interstate commerce are, with hardly an exception, members of these advisory organizations. The advisory boards offer a medium for the informal adjustment of car supply difficulties which frequently arise between the carrier and shipper. They give the public a direct voice in the activities of the car service division of the American Railway Association on all matters of mutual concern.

Some of the problems discussed by the regional advisory boards relate to the car-service rules of the American Railway Association and to the protection of the interests of the shippers and the railroads in the ordering of cars. Problems of distribution and marketing, as they relate to transportation, come before the regional advisory boards. Matters of freight-rate adjustment, however, can not come before the advisory boards. Each advisory board forecasts, by quarterly periods, the number of cars that will be required for movement of commodities in carload lots during the coming quarter, show-

ing just how much transportation and what kind of equipment the carriers will be called upon to furnish.

In the early months of 1927 an effort was made to bring about uniformity in the commodity committees of the various regional advisory boards, so that the quarterly forecasts could be placed together and a forecast for the entire country determined. It is expected that by the fall of 1927 such quarterly prognostications for the entire country may be available.

The traffic departments of trade associations are most interested in this cooperative work, and in many instances the various trade associations determine through a questionnaire method the quarterly forecasts for their particular commodity in certain regions. The determination of car requirements for commodity committees, furnished through the medium of trade associations, come under the traffic department of the associations. Speaking before the Atlantic States Regional Advisory Board April 5, 1927, Secretary Hoover, commenting upon the importance of the cooperative activities of the shippers' organizations, said:

> One of the reasons for the stability in our price levels has been the fact that goods move quickly and that there is not the stimulus to rising prices and the pyramiding of orders that come about in the face of any suspension of ample transportation.
>
> In the installation of these boards—the proof that it is possible for people of opposite interests to get together and arrange their own problems and settle their own troubles—you are making a demonstration that has a far greater and more far-reaching importance than perhaps the actual acts that you perform at these meetings, because you are demonstrating that it is possible that we can carry on this enormous commerce by cooperative action within your organization itself, and outside of the Government.
>
> Self-government is not solely a question of the election of representative officials. It is a question of self-government by the individual and by the industry outside of the Government. True self-government is the minimum of government; and you gentlemen are making a contribution to a fundamental thing in our whole social and economic system to-day in conferences of this type and in organizations of this sort.

The 13 public organizations, known as the Shippers' Regional Advisory Boards, were organized principally during 1923 and 1924. During these two years shippers' organizations were set up in 10 districts of the United States, beginning first with the northwest board at a meeting in Minneapolis, January 6, 1923, which was followed by the organization of the southeast board May 11 of that year. The last board organized was the Allegheny Shippers' Advisory Group, November 3, 1926. It is estimated that the membership of the various boards approximates 18,000, comprising the principal shippers, receivers, and bankers having to do with the movement of freight throughout the United States.

The objects of the regional advisory boards are probably best set forth in the minutes of the Trans-Missouri-Kansas Shippers' Advisory Board:

1. To analyze the transportation needs of the territory and assist in obtaining cars and transportation service necessary for these products.
2. To afford a meeting ground between shippers and receivers, where their interests may be considered and their differences speedily settled.
3. To promote a better understanding between the carriers and the shipping public of their relations and obligations to each other.
4. To study production, markets, and trade channels, and promote a more even and efficient distribution of the products of this region.

The shippers' advisory boards, born in a period of transportation difficulty and primarily intended as a method of adjusting complaints, have grown through a period of generally good service into a compact organization, striving constantly to correlate, in practical ways, the economic processes of distribution of the country. Through these boards the public becomes a partner in the business of railroad operation. Their continued successful functioning is the most significant and hopeful element on the railroad horizon.

RATE MATTERS

While a reference to rate matters may bring to mind what might properly be called a rate quotation department, a department which is generally involved in extensive tariff files and classified rate cards, it is generally the case that united action by trade associations is accomplished along much more constructive lines. Association traffic departments are often equipped for rate quotation work, but they may conduct work along broader lines of service. In short, the use and interpretation of tariffs is usually more logically a part of the routine traffic work which falls to the individual members' own traffic department, while the process of having the contents of tariffs changed, or showing why they should not be changed, is more often a joint activity for the association traffic department. While it is often desirable to avoid concerted action when it comes to rate adjustment, it is nevertheless true that many associations have successfully served their members, and more or less directly the consumer, by working with carriers and regulating bodies for the proper disposal of rate adjustments. It is logical to assume that a reduction in certain rates results in increased business for the members of the association and in lowered cost to the customer.

The function of the trade association traffic department will often be to investigate rates which are deemed unsatisfactory and to advise what action, if any, may be taken to get the unsatisfactory situation remedied. While a report that conditions do not seem to warrant action (changing a rate may not be what the members desire), the association traffic department often renders valuable service in discouraging attempts to force unreasonable adjustments. Its capacity therein would usually be that of expert adviser.

Where the association agrees with the traffic department that action should be taken to have a rate situation adjusted, the first step is to make overtures to the carriers for a voluntary change, if it lies within their power. However, if the carriers can not or will not do what is wanted, then comes the necessity of approaching a regulating body, generally the Interstate Commerce Commission, for relief. One further item which must be given consideration is the necessity in important cases of utilizing expert legal talent in addition to trained traffic experience. While practice before the Interstate Commerce Commission is not hedged about with the technicalities and expense which surround court cases an attorney is often necessary for such matters as the examination of witnesses and argumentation. Even though it may be necessary to retain an attorney, it will generally be the traffic man who will furnish the traffic knowledge and details necessary for presenting the case.

The filing of complaints against carriers is not a matter to be undertaken without due consideration of all things involved. Such action is often worth while, but should be taken only after consultation with the carriers. On the other hand, a presentation of the facts will often secure a voluntary readjustment according to suggestion. Increased revenue and tonnage are two matters of interest to the carriers, and the presentation of facts showing that they will follow a change in rates is often convincing argument.

Thus far rate cases before the carriers and regulating bodies have been discussed as emanating from the trade association. Certain rate cases sometimes originate in other sources, particularly in competitive industries. In this manner matters of interest to several trade groups are brought before the carriers and regulating bodies without any previous investigation or action on the part of an interested association. In such cases it may be essential that the association take a hand. A parallel instance might be one in which the traffic department of the trade association had previously investigated a certain situation and decided that conditions did not warrant putting the matter before the Interstate Commerce Commission. The logical step in most such cases is to make application for permission to "intervene" in the case. The intervention may be directly on the side of some one or more parties already involved, or it may be for the purpose of taking a stand somewhat different from that of those already parties to the case.

Proposed changes in the rates of competitive products are always matters of major importance for consideration and action on the part of the trade association traffic department or bureau.

CLASSIFICATION MATTERS

An opportunity for constructive assistance to members is often presented to the association traffic department in connection with

freight and express classification matters. For example, recently an association traffic department was instrumental in having the classification of certain scrap material changed. Thus, not only are the shippers of the commodity benefited, but it is to be presumed that a greater amount of material which might otherwise have gone to waste can now be marketed. In another case, certain producers of glass containers cooperated with shippers of commodities packed in these containers to secure the benefit of an Interstate Commerce Commission decision which reduced the classification of a specified commodity when packed in glass. While these examples reflect some very substantial benefits which have accrued to association members through the activities of their traffic departments, it must be remembered that packing requirements, minimum weights, and many other factors affecting transportation charges and the safe carriage of goods are classification matters, and their proper adjustment offers too many opportunities to be easily enumerated. Such changes may mean a reduction in the cost of every shipment of a specified commodity moving subject to the changed provision. Also, as classification provisions apply over wide areas, the volume of traffic affected will be considerable, and there will consequently be less probability of a conflict of interests than there would be in rate cases.

RULES AND REGULATIONS

What has been said as to association action on rates and classification may well be extended to other phases of traffic work pertaining to quick and economical transportation, including demurrage, storage, transit privileges, switching, dunnage, and miscellaneous rules and regulations. Stated briefly, the relation of the association traffic department to such matters will be (1) to see that hearing proceedings are initiated with the carriers and regulating bodies when circumstances require and when authority has been given; (2) to know when moves for proposed changes have been initiated either by carriers or by firms outside the industry; (3) to advise what action should be taken when such matters are under consideration; (4) to take advantage of the authority of the Interstate Commerce Commission to suspend rates, rules, and regulations which the carriers propose to put into effect, and to show why the suspension should be made permanent if conditions seem to warrant.

CAR SUPPLY

Problems of car supply are among the principal questions discussed at the meetings of the regional advisory boards. Determination of the amount of equipment which the carrier may be called upon to

supply during a certain period is important in relation to a shortage of cars, when there is a heavy movement of freight.

During the year 1926 Class 1 railways originated over a third more freight than during 1921, without any car shortage but, on the contrary, with high car surpluses. Only five years ago the average daily car shortage aggregated 138,500 cars. Revenue-freight ton mileage increased from 310,000,000,000 in 1921 to 444,000,000,000 in 1926 for Class 1 carriers.

Last year the Pacific Coast Regional Advisory Board, through a committee composed of the principal shippers of deciduous fruits and trade associations interested in the movement of these commodities, instituted a car plan for the handling of grapes moving out of California to the eastern market centers. Not only did the grapes move regularly to their distribution points, but at no time was there any shortage of refrigerator equipment. Another instance of the cooperative work of the regional advisory boards was the marketing of sheep in the Middle West. More even distribution was effected through the efforts of the stock committee of the Central Western Advisory Board.

Various trade associations, members of the Southeastern Advisory Board, Florida division, cooperated with the Department of Commerce in the Florida transportation field survey, which was completed during the summer of 1926. This survey endeavored to determine five principal things: (1) Stocks on hand for the principal commodities coming into and shipped out of the State; (2) production and production capacity of the various industries; (3) turnover; (4) method of shipping and receiving freight—rail, water, and truck; (5) estimate of car requirements for outgoing commodities and estimate of inbound freight required during the last quarter of the year. The Department of Commerce made a preliminary report in October, 1926, wherein the car forecasts were given, and the final report was published in January, 1927. In cooperation with the Central Western Advisory Board, the Department of Commerce is now undertaking a warehouse survey to determine the amount and kind of warehouses available in each of the five States comprising this advisory board.

Many examples of better market distribution and of the elimination of waste through the cooperative work of association traffic managers and individual shippers may be cited. The efforts of the members of the regional advisory boards, many of whom are members of trade associations, have accomplished a great deal in the elimination of waste in the use of railway equipment, which materially tends toward a better car supply.

No matter how capable or how conscientious the traffic man with the individual concern may be, he can speak only for his own con-

cern. Reports of individuals multiplied several times over produce a conflicting mass of information for carriers and regulating bodies in their attempts to ascertain how many cars are needed, at what points and when, and other essential information for relieving car shortage and embargoes. On the other hand, a statement from one traffic man that certain individuals need so many cars and need them at specified points gives authority which can be regarded intelligently and seriously. It may be recalled that this group method of presenting car needs was utilized to great advantage in the nation-wide car shortage of 1922.

Embargoes, car-service orders, and priorities often affect industries as a whole, and united action logically comes through traffic departments of those industries united in trade associations. Similarly, where a modification of orders restricting the use of cars or the acceptance of certain kinds of traffic can be secured, it generally means wider distribution of necessary commodities for those who obtain a satisfactory car supply. The value of united action on the part of users of cars is supplemented by the fact that the railroads, through the American Railway Association, present a similar unit organization for the car owners and operators.

AUDITING TRANSPORTATION BILLS

While the auditing of transportation bills for members of the association may be looked upon merely as a strictly individual service, it will prove beneficial to the association as a whole. Transportation bills are the best possible index as to what is shipped and received by an industry, and the auditing of these bills gives the association a true perspective, not obtainable in any other way, of the traffic handled by the members.

This information is especially valuable when rates and classification changes are proposed. The association traffic department then can tell concretely how those changes may affect the industry. For example, suppose it is proposed to change the classification provisions on a certain article when shipped in crates. Information obtained from transportation bills may tell that this change would not affect the members because their shipments are almost entirely handled in cases; or it may divulge that the change will affect the members in a vital way, their traffic being handled almost entirely in crates.

SPECIAL SERVICES TO MEMBERS

While it is not possible to deal comprehensively with the manifold specific details of the possible activities of the association traffic department, generalizations may be given as to what further services the department may render in helping the association to solve its

transportation problems. As has been indicated, there are often legitimate objections to the association traffic department's attempting to do the routine traffic work of individual members, yet it sometimes happens that certain details go wrong in the individual's traffic routine. The individual member may then look to the association traffic department for help in removing such difficulties. For instance, in the matter of claims the individual traffic manager may find the carriers refusing to meet what seem to be perfectly legitimate demands on his part. In such cases the association traffic department can often determine the merits of the situation and can either advise the shipper wherein the carrier's contention is correct or can use its efforts to have the carriers make proper adjustments. Where the carriers appear to be in error it may add strength to the argument to have the change of policy asked for with the full weight of the association. Thus, it might be shown that conditions upon which the carriers were basing a policy in the adjustment of claims were not typical, but applied only to certain individuals.

The following instance illustrates how an association traffic department assisted an individual member. A member, learning that many of his claims were being declined by the carriers, asked for an explanation. Investigation by the association showed that the claims were being declined because they were not being filed within the time specified on the bills of lading. The traffic department was thus able not only to assure the member that he was being treated fairly, but also gave information whereby he was saved from losing similar claims in the future.

The association traffic department may be of real service to the individual member in cooperation with or on behalf of the latter's traffic manager in ascertaining and securing proper routings and most favorable billing of specific shipments.

TRAFFIC MANUALS

Traffic assistance may be rendered by the association in part through the publication of manuals on traffic matters which will serve as guides to the employees of the individual concerns in taking care of routine traffic affairs. As an example of this, one association traffic department manager has issued such a publication entitled "Transportation Troubles," with subtitles "How salesmen can help to overcome them," "Claims, freight or express: How to file them," and "Freight classification rules and descriptions of goods." To the extent that it is possible to render aid in this stereotyped form, the association traffic department will be saved the necessity of continually repeating certain standard information. Still more important, members will often be enabled to avoid pitfalls therein explained, thus avoiding possible trouble and expense. For example,

information as to proper classification of shipments will often obviate the necessity of filing overcharge claims, because charges will be correctly assessed in the first place.

In going through matters which are common to the work of the individual traffic departments it may be demonstrated how the association traffic department can render "first aid." In one instance the assistance may be in the form of interpreting a tariff, in another advice as to what tariff is needed, and in a third case, perhaps, a member may want to put a matter before a classification committee and does not know how to do it. It does not take very much of the kind of assistance that the association traffic department can render in the time of need to more than repay the cost to the membership.

TRAFFIC BULLETIN SERVICE

A bulletin service is another feature of an association traffic department's program of work which will often meet with a favorable reception from members who feel that their own traffic departments are able to look out for their individual interests in most respects. Such bulletins are designed to furnish information of every nature bearing upon the transportation of the commodities in which the members are interested. They may profitably include information as to car requirements for the commodities in which the members are interested, such as changes or proposed changes in transportation rates and regulations; carriers' dockets; hearings and decisions by courts, regulating bodies, and carriers' organizations; new containers; and new transportation routes. As an example of the possibilities of this kind of service, which may be supplementary to or incorporated in loose-leaf traffic manuals, as desired, an association traffic department may check the tariff number of a publication which, although effective, may not have been noticed in the local freight agents' files. The knowledge of the existence of this tariff and the quoting of its number might enable some of the members to settle with the railroads on the basis of a lower rate than that applied by the agents.

While the extent to which it is practicable to go in preparing these bulletins will depend upon particular circumstances, the use of publications, at a minimum expenditure of time and money, always seems desirable. So far as concerns the activities of the Interstate Commerce Commission, descriptions of tariffs filed, and many other similar matters, some association publications deal exclusively with such tariff subjects, and these, supplemented from such sources of information as may be developed by the association, furnish a foundation for serving the members in a very profitable manner.

OVERSEA SHIPPING PROBLEMS

Several trade associations whose members ship by ocean steamers have rendered effective service in connection with problems of packing, prevention of pilferage, avoiding delays at terminals, and rate and classification matters. They frequently carry on negotiations in behalf of an industry with the conferences which establish rates for various trade routes. A number of bodies representing a diverse membership, such as the National Foreign Trade Council, the National Association of Manufacturers, and the American Manufacturers' Export Association, also include among their services aid in solving shippers' transportation problems.

IMPROVED TRANSPORTATION FACILITIES

The most efficient and economic coordination of railway, inland and ocean waterway, highway, and airway traffic can be achieved much more satisfactorily with the aid of trade associations which bring to bear on the problems involved the facts and points of view of the different shippers and receivers of freight throughout the country. Since more than $1,000,000,000 a year in capital expenditures are involved, their most effective application is an economic problem of far-reaching and vital importance.

Trade associations which analyze the transportation needs of various industries render a distinct service through providing the facts needed by the railways in expanding and improving their facilities. The close contact of shippers with railways furnishes a safeguard that rates not only will be equitable to shippers but will supply the finances for needed improvements and expansion. Furthermore, in connection with such recurrent problems as the development of improved terminal facilities, store-door delivery, and coordination of motor-truck and rail transportation, they are in a position to aid in formulating plans in which the possibility of costly mistakes is minimized.

Transportation by inland waterways and by air are on the threshold of greater development. As the main trunk and laterals of the Mississippi-Great Lakes waterway system become more nearly completed, their early and profitable utilization can be materially advanced by cooperation among groups of shippers who, even without combining to do what some large individual companies have done in establishing barge lines, may at least be able to assure business to lines established independently. The inauguration of lines which serve a useful purpose can be greatly facilitated if various industries can act as a unit in the matter.

CHAPTER XIV.

CONSTRUCTION INDUSTRIES

In the construction industries those trade associations are strongest which are composed of a group having strong and direct bonds of common interests, as in the case of manufacturers of the same or similar materials who want to extend the use of their product, and who have similar credit and traffic problems, and State and regional organizations of retailers. Local builders' exchanges composed of contractors, subcontractors, and dealers in materials, which are well integrated through the members' common concern in local affairs, are likewise strong and active.

Success in attacking intergroup problems, such as stabilization of building activity, building and plumbing codes, simplification of dimensional varieties, and better utilization of building materials, are possible only because the individual groups concerned have been organized to handle problems primarily concerning their own group and other single groups with which they have direct contact. For the scattered members of an industry to meet and act together requires time and the discipline that comes from experience in acting as a unit.

The collection of national statistics, the use of standard contract forms, the establishment of national standards for materials, and so on, are all the results of cooperative effort and represent the type of activity that has brought so many groups together under one classification. Whether work within the group or work involving several groups is of greater importance matters little. Each is worth while in itself and each tends to strengthen the other and make it more effective.

BUILDERS' AND RELATED ORGANIZATIONS

NATIONAL ASSOCIATION OF BUILDERS' EXCHANGES

The National Association of Builders' Exchanges illustrates a national body which derives its strength mainly from the strength of its local constituent bodies. Its members are all organizations, which usually join the national body as full-fledged working units.

The builders' exchanges, as suggested before, are bodies bound together primarily by interest in common local problems. About 50

of these exchanges, having in all about 6,000 individual members, belong to the national body. Some conduct an information service which makes available data in regard to building permits, requests for bids by owners and architects, and other facts relating to new work. Others represent the employers in the making of trade agreements with labor unions and promote campaigns for accident prevention in building. Credit bureaus and counsel to aid members in the settlement of mechanics' lien claims are maintained by some. A number have conducted cooperative advertising campaigns and have been active in measures to stabilize local building activity. Most of them take an active interest in State legislation that may affect builders, such as employees' accident compensation, mechanics' liens, taxation measures of various types, and laws relating to the award and conduct of public building and construction of public works.

The national organization headquarters and the annual conventions serve as mediums for exchange of ideas between leaders and make it possible that the experience of one local body in meeting a given problem or State law be made available to all the rest. The secretaries of local exchanges have a special branch of their own, which enables them to "talk shop" in a systematic way.

ASSOCIATED GENERAL CONTRACTORS

The Associated General Contractors is a more centralized organization, drawing its membership to a considerable degree from the larger contracting firms of the country. It reports 2,080 individual members and 83 local chapters. In addition to an annual convention there are quarterly meetings of its executive board, usually held in rotation in different regions of the country, and sectional meetings are held from time to time which afford further means for members to meet together.

At the 1926 convention the following committees submitted reports: Legislation, ethics, labor, insurance and bonds, membership, contracts, construction development, methods, transportation, publication, building and safety codes, equipment and materials, and concrete mixer manufacturers' bureau. These committees also make special reports from time to time during the year and serve as counselors to the staff, to the editors of The Constructor (the official organ), and to local chapters requesting advice on specific matters.

The organization took a leading place in the movement to have State highway departments let more road contracts in the autumn, so that contractors could move their plant and equipment to the site during the winter, and in some cases store materials in advance. This enables them to get under way earlier in the spring, with consequent savings. The association also took the initiative in the

formation of the committee which prepared the fourth edition of the American Institute of Architects' standard building contract documents and standard forms for highway, railroad, and public works construction.

The four leading problems which the association now has before it, according to its own announcements, are (1) the elimination of irresponsible contractors, (2) reform in bonding practices, (3) elimination of day labor in public works construction, and (4) reform of mechanics' lien legislation.

One of its chapters is encouraging local effort to have a rating bureau pass on the qualifications of contractors as a means of protecting the public as well as owners, dealers in materials, subcontractors, bonding companies, and other groups from the losses due to failure on the part of irresponsible contractors. These losses must be made up in one way or another through higher charges, and the public pays in the long run. Irresponsible contractors are chargeable with much work of poor quality—also an item of loss to owners. A movement has been initiated for standardizing the questionnaires that aim to throw light on the standing of contractors. The variety which exists in such forms at the present time imposes a severe burden on firms, necessitating the presentation of many different sets of figures, each of which aims to bring out the same point. Closely intertwined with this movement is that for reform of bonding practices, so that irresponsible contractors may not so easily obtain a bond guaranteeing completion of the work, free from liens, on which the owner relies to secure performance.

In its campaign for elimination of day labor in public works construction the Associated General Contractors have sought to prove that in nearly all cases where Government agencies undertake building by directly hiring the personnel and buying the material the real costs to the public treasury are higher, and to show that in most cases figures purporting to indicate the contrary leave out essential items such as proper charges for the use of equipment.

Standard forms for accounting and other branches of office work have been worked out and published in a loose-leaf manual of practice. This was prepared primarily for the use of members, although it is available to others. The association believes that wide use of good estimating and cost methods will tend to reduce failures among contractors due to mismanagement and ignorance.

The committee on methods has made valuable studies on the elimination of waste in building, especially with regard to seasonal stabilization, methods of winter work, accident prevention, and proper use of equipment.

In standardization and in simplified practice the organization has been instrumental in bringing about uniformity in the design of

concrete mixers and in the use of standardized parts in such equipment. It also cooperated with manufacturers of wheelbarrows to standardize sizes, specifications, and dimensions of parts most commonly needed for replacement. It also lent its support to many of the simplified practice agreements relating to building materials which have been arranged under the auspices of the Department of Commerce.

NATIONAL ASSOCIATION OF REAL ESTATE BOARDS

The National Association of Real Estate Boards is one of the largest trade associations in the country, with more than 600 local board members, 42 State associations, and more than 44,000 individual men affiliated with it through their local boards. Practically all its members are interested in new construction, directly or indirectly.

In 1924 there were formed within the association seven divisions. The mortgage and finance division is concerned with construction. in so far as its members are engaged in providing the necessary funds. The home builders' and subdividers' section is definitely united into one group, with its own program at conventions, its own publications, and its own officers. Some of its members, to be sure, are concerned mainly with selling lots, but the greater majority are either builders themselves or employ contractors extensively. Hence, this division has become a third great national organization of builders, interested in methods of building practice, improved architecture, mechanics' liens, building codes, stabilization, development of the market for homes, and many other problems that concern the members of builders' exchanges.

The home builders' and subdividers' section is particularly concerned with the suitable development of land and has undertaken especially to further the more thorough and more scientific control by the municipality of street and block layout, the economical development of land with streets and utility lines, and the improved appearance of residential neighborhoods.

The members, through the national organization, are also contributing to the work of the institute for research in land economics and public utilities, attached to Northwestern University, Chicago. This institute is undertaking some fundamental studies in taxation of land and mortgages, the relation of public utilities to land development, the best utilization of urban land of varying types, location and value, trends in urban land values, and other matters.

One of the most important aspects of the work at the institute is the development of a series of textbooks for use in connection with a program for education in real estate, which was launched by the

national association in 1923. The steps in this movement have been outlined as follows:

(1) The creation of a national joint commission on real estate education, representing the national association itself, the institute for research in land economics and public utilities, the united Y. M. C. A. schools, the American Savings, Building, and Loan Institute, and at one time the American Association of Collegiate Schools of Business; (2) the blocking out of a suggested two-year vocational course in real estate adopted by the commission in November, 1923, subsequently revised and now in use in whole or in part in some 200 cities of the United States and Canada; (3) the formulation and recommendation of collegiate majors in real estate; (4) the writing and publication, under the joint auspices of the national association and the commission, of a series of textbooks bringing together the best existing knowledge on various phases of real estate and land economics, of which series six books are already published, two are now on the press, and four are in preparation. These cover the subjects of general land economics, general principles of real estate business practice, appraisals, real estate law, city planning and land planning, real-estate advertising, the administration of a real estate board, building and loan associations principles, building construction and design, real estate finance, property management, and the organization of cooperative apartment buildings; (5) the preparation of detailed session-by-session outlines for vocational classes in real estate, which aid the member boards of the association in the organization of local professional study, these outlines covering (*a*) fundamentals of the real estate business, (*b*) real estate law, (*c*) real estate conveyancing practice, (*d*) appraisals, (*e*) real estate finance; (6) the organization, in consultation with numbers of the leading men in the business of real estate, of a home study course in the principles of real estate practice, designed for such persons or communities as have not access to regular class work in real estate; (7) organization of the American Real Estate Institute as a branch of the National Association of Real Estate Boards to conduct this home study course; (8) assignment annually by the various divisions of the association of problems held to be most important for study, selection of a leader in each business field to head the study and to report findings, and publication of these findings and of other material comprising the year's contribution to real-estate thought in a nine-volume publication comprising the annals of the association.

BUILDING OWNERS AND MANAGERS

The National Association of Building Owners and Managers has developed improved practices in the interior layout and equipment of buildings, particularly offices and apartment houses, through the studies of its committees. It furnishes committees especially qualified to give advisory planning service to owners and architects with respect to particular buildings. Thus, an owner is able to benefit from the experience of others who have operated buildings of the particular type which he is erecting.

SUBCONTRACTORS

Subcontractors in a number of the building trades have strong local organizations in most large cities. These local branches are often affiliated with local builders' exchanges or local associations of

building-trades employers. They deal with trade practices, local legislative problems, labor relations, credits, and other local matters. Their national bodies hold annual conventions and publish bulletins containing technical notes. Their national officers are always available to represent the interests of the group in matters involving the cooperation of other groups.

BUILDING CONGRESSES

Local building congresses or equivalent bodies have been established in New York, Boston, Philadelphia, Portland (Oreg.), and a few other cities. These bodies include not only the business groups directly concerned with construction but building-trades labor and representatives of financing institutions and building owners. They have done much to promote a better quality of construction, to stimulate craftsmanship among workers, and to secure a better seasonal distribution of building by working up forecasts of local building activity and securing adjustments of large and small building operations and repair work to provide more even employment.

AMERICAN CONSTRUCTION COUNCIL

The American Construction Council represents the following groups: Architects; engineers; general contractors; subcontractors; construction labor; manufacturers of material and equipment; dealers in material and equipment; financial, surety, bonding, real estate, accounting, insurance, and building and loan organizations; chambers of commerce and boards of trade; public utility construction departments; representatives of Federal, State, county, and municipal bureaus or departments concerned with construction; and national associations of builders' exchanges and of building trades employers' associations and similar associations or federations of building interests. Being a federation of the above-mentioned bodies, the council endeavors to take up problems in which all are concerned and which are in the public interest. Its meetings afford an opportunity for contact between representatives of the different groups who would otherwise not come together regularly. The council is particularly interested in stabilization of building, both seasonal and cyclical; better quality in the construction of buildings; sound financing of buildings; city planning; and development of apprenticeship programs.

MANUFACTURERS OF MATERIALS

PORTLAND CEMENT

The Portland Cement Association is unique among the large trade associations in that it is concerned solely with promoting the use of a standardized product meeting uniform specifications. Matters

affecting trade practices are not touched upon, although many of the members also belong to the Cement Manufacturers' Protective Association, which has been concerned with such matters.

The growth of the Portland cement industry in the United States has been remarkable, consumption in 1925 being about 50 per cent higher than in any pre-war year, and each of the past five years has shown an increase over that of the previous high record.

The work of the association has centered on (1) finding the facts in regard to the best and most economical use of Portland cement, (2) seeing that the facts are made known and are used in actual practice, (3) securing a wider and more stabilized market.

In order to find the facts the association has supported an extensive program of research at the Lewis Institute in Chicago, which has contributed materially to knowledge relating to the effect of varying amounts of water, cement, and coarse and fine aggregates in mixing concrete; the effect of time and thoroughness of mixing; time before placing in the forms; effects of temperature on setting; and the effect of keeping the concrete saturated with water during the process of curing. It has also developed practical methods for testing sand and gravel for the presence of harmful organic matter. About $150,000 was allocated for the research work of the Portland Cement Association in 1926, and this is now carried on in the association's own building, its specialists making some 45,000 tests a year. It now supports six research associates at the Bureau of Standards, who are working on some of the basic problems relating to the manufacture, composition, and properties of the various types of cement. In cooperation with engineering societies and colleges schools for the study of concrete are conducted by the association, the aim being to reach engineers, builders, and others concerned with the use of this material.

One of the most recent developments has been the mortar-cement ratio as a specification for concrete. If the amount of water per sack of cement is fixed, and the resulting mixture has the workability necessary for the place in which it is used, the resulting concrete has been found to have a satisfactory strength. This makes it possible to work out the proportions of coarse and fine aggregates on the job without elaborate tests, and also facilitates inspection.

The association has prepared many bulletins and posters explaining proper methods and precautions in the use of cement. Its district engineers and their staffs, with headquarters in 31 construction centers, become acquainted with the responsible men in charge of most of the important operations and assure themselves that good practice is being followed

The Portland Cement Association has also carried on one of the largest cooperative advertising and sales promotion campaigns in history. In addition to covering trade and technical periodicals, it has placed extensive newspaper advertising, and its district engineers aim to reach those in control of large operations where concrete may be used. Plan books containing designs for small houses have been issued, with blue prints available at low cost.

The use of concrete block, tile, and other building units has been furthered by studies of technical problems, by performance tests, and by bulletins designed to interest business men in setting up fabricating plants. Concentration on these items has been advocated for the winter months to increase the demand for cement when consumption of cement for other purposes declines.

The structural engineers on the association staff have carefully studied building-code requirements, particularly as they affect concrete. They have conferred with local committees engaged in framing new ordinances and have aided the building-code committee of the Department of Commerce.

The Portland Cement Association aided in the formation of the American Concrete Institute (a technical body with a membership of 1,550 devoted to the better use of concrete) in the development of standard specifications for the making of concrete, and in the use of concrete in design. Its meetings and committees furnish opportunity for architects, designing engineers, structural engineers from university testing laboratories, officials in charge of public-works construction, construction engineers and superintendents, and the makers of concrete building units to get together. The directing officers have been men primarily interested in construction or design, as distinguished from the manufacture of cement.

Support has also been given to the Concrete Products Association, devoted mainly to the development of methods and markets in the field of concrete building units—block, wall tile, roofing tile, floor and roof slabs, and standardized parts for dwelling construction.

The Portland Cement Association has 525 employees in the general offices, 31 district offices, and 2 laboratories. The 290 district engineers and field men, who are trained concrete specialists, in the course of a single day are said to travel 9,000 miles by automobile and 10,000 miles by train, make 1,900 calls, and inspect 550 important jobs. Each field man is assigned a definite territory and must know what buildings are going up within it and what streets need paving.

LUMBER MANUFACTURING

The basic unit in associations of lumber manufacturers is the regional association, which is usually, although not always, devoted to but one species or a few closely related species. The regional

associations are concerned mainly with varying combinations of the following types of activity:

1. *Trade-promotion work.*—Several of the regional associations carry on cooperative advertising campaigns. These involve not only advertising in periodicals, but the furnishing of house plans to home builders and retailers and of descriptive booklets showing attractive uses for lumber and methods for using it economically. Frequently the trade-promotion work stresses the strength or uniformity of grading or other advantages of the species, and this involves the enforcement of uniformity in grading on all members.

2. *Uniformity in grading.*—This involves the formulation of definite rules and inspection with some form of centralized control to assure uniform application. Under the grading rules incorporated in the American lumber standards, much of the responsibility for assuring conformity remains with the regional bodies.

3. *Traffic service.*—Many of the regional associations maintain traffic bureaus to keep their members informed as to conditions of rail transit and to aid them in obtaining a proper supply of cars. Such bureaus are represented on the regional shippers' advisory boards.

4. *Statistics.*—Collection of weekly and monthly data on lumber sales, production, shipments, and mill stocks is one of the important services performed by the various regional bodies. These figures, issued promptly, are among the most valuable of trade indicators. (See Chapter III.)

5. *Public relations.*—The regional associations have taken an active interest in taxation and reforestation problems. The two are closely related, for taxation of timber strictly on the basis of stumpage value puts a premium on immediate cutting and discourages commercial reforestation. Taxation more on the basis of yield when the cut is made is felt by most lumbermen to be more in the public interest. Fire protection in forests and aids to tree planting on the part of State governments through the maintenance of State nurseries and State forest services are also encouraged by lumbermen as measures for the conservation of lumber and continuation of supply. Lumber producers' associations usually take a keen interest in the fair treatment of lumber in local building-code regulations in their respective States.

Most of the large regional associations belong to the National Lumber Manufacturers' Association, which issues a weekly summary of statistics received by telegraph from 10 of the regional bodies, and a monthly bulletin devoted to news of the lumber industry. Publications range from technical studies of mill construction and fire-stopping in dwelling houses, for the use of engineers and architects, to descriptions of house-plan services and the formation of

home-financing agencies, for the use of retailers and prospective home seekers. An information section furnishes to the press facts covering taxation of timber lands, reforestation, building codes, and other matters of timely interest, in order that the public may be informed as to trends in the lumber industry.

A structural department of the association keeps in active touch with bodies engaged in reviewing building codes throughout the country. The National Lumber Manufacturers' Credit Corporation, an offshoot of the association, is maintained in order to give manufacturers the data they need in questions of granting credit to wholesalers, retailers, and other purchasers. Insurance is provided by a mutual organization, the National Lumber Manufacturers' Inter-Insurance Exchange.

The national association in 1926 undertook a trade extension campaign, in cooperation with wholesale and retail distributers, to promote wider and better utilization of lumber. Emphasis was laid on the uses for which lumber has unique and valuable properties, avoiding those fields in which lumber does not have some real advantage over other materials.

Another part of the association's work is a campaign for elimination of waste in the use of lumber, designed especially to interest the employees and managers of woodworking and manufacturing plants through the awarding of prizes for development of new methods.

Each year a number of regional logging congresses are held, at which those in charge of logging operations meet to discuss methods which will result in lower costs, less waste of the tree in the forest, and quicker reforestation, with the least danger of fire. The logging congresses also afford an opportunity for the lumbermen to come in contact with representatives of most of the important concerns which sell machinery and equipment used in logging operations.

In conjunction with the annual meeting of the National Lumber Manufacturers' Association there is held an American lumber congress to bring together the producers, wholesalers, and retailers. This provides a periodic means for leaders in each group to get each other's point of view on common problems, and thus tends to forestall the development of tendencies hurtful to any group.

STRUCTURAL STEEL

Fabricators who prepare the shapes and plates to the right dimensions and assemble parts for erection in the finished structure are organized on a national scale through the American Institute of Steel Construction, which was formed in 1921 and which now has enrolled more than 200 members. The institute deals mainly with technical problems, and to a certain extent with trade-extension work. Soon after its organization a committee of five eminent engineers and

architects was delegated to formulate a code of standard practices covering allowable working stresses and other elements of design in steel structures. This committee came to the conclusion that 18,000 pounds was a safe maximum working stress, instead of 16,000 pounds, which had stood for practically a quarter of a century. The higher stress limit, which permits a saving of approximately 12 per cent in the amount of structural steel required in a given building, has been adopted in many cities.

The institute has also issued standard specifications for structural steelwork and is endeavoring to encourage the employment of competent engineers for the design of steel structures.

Local associations of structural fabricators, such as the Structural Steel Board of Trade in New York, and the Society of Iron and Steel Fabricators of Milwaukee, are maintained in several localities. Their chief field is usually employee relations. The Central Fabricators Association includes firms in Illinois, Iowa, Kansas, Missouri, Nebraska, Minnesota, and Wisconsin, and compiles statistics on monthly bookings and shipments of structural steel by its members.

METAL LATH AND SHEET STEEL

The Associated Metal Lath Manufacturers has been concerned primarily in establishing uses for its product in building. The association has been instrumental in developing and popularizing the use of metal lath as a base for stucco and plastering. It has undertaken tests to show the advantages of metal lath in preventing cracks in plastering and to find out the critical points in buildings at which it is most effective for this purpose. The association was instrumental in setting up the series of tests at the Underwriters' Laboratories which gave a "one hour" fire rating to partitions constructed of wooden studs with metal-lath back plastered with Portland cement mortar. This rating permits its use for the partitions between the units of a two or three family house and between a built-in garage and the remainder of a house. Cooperative advertising and the preparation of circulars for contractors, architects, and owners have been used as means of promoting sales. In order to give assurance against practices of cutting down the amount of metal in a given area of the product, and thereby the strength, the association was instrumental in changing the basis of specification to weight per square yard, instead of by naming the gauge of the sheet steel from which the lath is made.

Much of the metal lath is made of sheet steel, and a number of the larger companies which produce both items have formed the Sheet Steel Trade Extension Committee. This committee has undertaken an extensive cooperative advertising campaign and has established a bureau to assure proper recognition of sheet-steel products in municipal building codes.

BRICK AND TILE

For shipping purposes the weight and bulk of common brick is comparatively large in relation to its selling price. Since this material can be manufactured in most sections of the country comparatively inexpensively, even in small plants without much modern equipment, it does not ordinarily move over long hauls; hence the work of the Common Brick Manufacturers' Association, which includes about a third of the industry in its membership, has to do mainly with developing the demand for brick and does not enter largely into matters of credit or traffic. The association has undertaken a national advertising campaign and issues books and plans for small homes, bulletins relating to specific problems and products, and pamphlets describing the best practices in brick construction, including methods of obtaining varied and pleasing artistic effects. The association compiles monthly statistics on shipments, stocks, and unfilled orders of common brick by its members.

The association has also taken the stand that an increasing use of brick will require a larger number of skilled brick masons, and that with restricted immigration the welfare of the industry requires more attention to the training of apprentices. It accordingly prepared a manual of instruction in bricklaying and has sought to encourage class-room instruction in various cities to supplement training on the job by master masons. Research associates are maintained at the Bureau of Standards to investigate the many technical phases of using and manufacturing brick.

Face brick is more of a specialty than common brick, moves greater distances to markets, and requires more highly developed plants for production. Both the American Face Brick Association and the Northwest Face Brick Association carry on cooperative advertising campaigns and issue books of house plans and other printed matter.

The primary purpose of the Hollow Building Tile Association has been to obtain a wide market for a material whose qualities and uses in construction are not so widely understood as those of certain other materials. Hollow building tile is manufactured by relatively fewer companies than brick. The association has sought to establish the properties of this material by means of tests and to furnish architects and engineers with reliable and usable data relating to its use. (See Chapter VI.)

The Associated Tile Manufacturers have been instrumental within the past few years in carrying through a simplification program to reduce the number of sizes of the different types of vitrified and glazed tile produced by its members. This program has been accompanied by the preparation of books giving specifications and details for the use of architects.

Emphasis has been laid by the association on the training of skilled tile setters, for it has been found that the market for floor and wall tile has been limited markedly by the inability of builders to obtain good men. A course of instruction has been prepared and a national training school set up in California. Preparation of the teaching material cost more than $30,000. Scholarships are awarded by the association to promising young men, who receive six months intensive training at the school and then serve an apprenticeship of a year and a half. It is believed that many of the men so trained will be competent to aid in training apprentices in their respective communities.

LIME

The National Lime Association has endeavored to base its work on research into the more efficient manufacture of lime, with a view to securing assurance of quality in the finished product and obtaining exact data as to its properties when used for all plaster lime-mortar, for the tempering of other mortars, in fertilizers, and for new uses. Special attention has been given to the best uses of lime with different properties. Research associates have been maintained at the Bureau of Standards for a number of years. This work has resulted, for example, in the perfection of a type of insulating block with a low specific gravity, giving a good hold, without splitting, on a nail driven into it.

PAINT AND VARNISH

The National Paint and Varnish Association represents manufacturers, retailers, and master painters. All three groups united in a five-year "Save the Surface Campaign," with extensive advertising in national and local publications. This aimed to double the use of ready-mixed paint in five years and succeeded in three years—two years ahead of schedule—so a second program, calling for another doubling, was immediately embarked upon. Although the local as well as national bodies representing the three groups are distinct in their organization, despite the pooling of interests for the specific trade promotion movement, there are paint, oil, and varnish clubs in many cities, which bring together the dealers, local manufacturers, and master painters. There are also "zone" or regional conventions, so that the various elements of the industry are unusually well integrated.

SLATE

The National Slate Association has carried on a cooperative advertising campaign. One of the great handicaps of the industry had been the lack of standard sizes for the structural slate used for switchboards and for partition panels of various types, which made

practically every order a special one. Through a simplification program and the issuing of booklets for the use of architects and engineers there has been a considerable concentration on standard sizes, permitting the quarrymen to manufacture more largely for stock.

DISTRIBUTION OF BUILDING MATERIALS

The National-American Wholesale Lumber Association, with more than 800 members representing a large proportion of the wholesale lumber trade, is concerned mainly with traffic problems, credit information, and trade practices.

The lumber retailers of the country are organized in State associations. The State associations, in turn, are commonly members of regional bodies, and of the national association or of the Southern Retail Lumber Dealers' Associations.

The National Builders' Supply Association represents a federation of local, State, and regional bodies of retailers and covers much the same field as the retail lumber dealers, mentioned under lumber, with more emphasis on problems relating to masonry supplies.

The retail associations are generally concerned with matters pertaining to mechanics' liens, trade practices, traffic problems, uniform accounting, statistical analyses of trends in their field, and operating and merchandising methods. Some maintain counsel to aid members in lien cases and other litigation and in credit and collection problems.

INTERGROUP ACTIVITIES

UTILIZATION OF BUILDING MATERIALS

Problems involving three or more distinct groups are common in the construction industries. Among these, in addition to stabilization, is the most effective use of building materials, from an engineering point of view, which depends upon the following factors:

1. Uniform, dependable properties, which may be secured by rigid control of standards in manufacture, and which may involve the development of standard specifications for the finished product and improved technical processes in production. In the case of products such as lumber, which can not be produced in uniform quality, effective utilization depends on sorting and grading so that individual pieces will conform to known standards of performance.
2. Correct use of the material in the design of the structure.
3. Standard quality of workmanship.
4. Studies and tests of the behavior of materials under varying conditions as found in practice.

Trade associations have studied many factors individually, but one of their largest contributions has been made through their participa-

tion in the work of the American Society for Testing Materials, whose specifications are recognized throughout the country among engineers, architects, contractors, and owners, and in the building codes of scores of cities. As a result, manufacturers of building materials who sell their products nationally must, as a matter of practice, make their products conform to the standard.

The American Engineering Standards Committee, a federation of professional and technical organizations and of Government departments, described more fully in Chapter VIII, has done important work in engineering standards in construction. It has joined with the American Society for Testing Materials in securing official recognition of the A. S. T. M. specifications by many trade associations, governing authorities, and professional societies. It has worked with the Bureau of Standards and other bodies in developing a safety code for elevators and escalators, and is working on a number of other safety codes, including one for exits in theaters, apartments, office buildings, and other structures. The committee is associated with other groups in working out a safety code for logging and sawmill machinery and for woodworking plants. In cooperation with the American Society of Safety Engineers and the engineering division of the National Safety Council it worked out a safety code for ladders.

LUMBER STANDARDS

Under the central committee of lumber standards appointed by the Secretary of Commerce in July, 1922, American lumber standards have been worked out and developed by the four annual conferences of lumber manufacturers, dealers, and consumers called by the Department of Commerce. At the same time progress is being made in the grade marking of lumber. The savings in consumption of wood through guaranties of quality, more stable manufacture, and more economical distribution are already large. It was not enough that the lumber manufacturers agree, but it was necessary that wholesalers, retailers, and users of wood be brought into the scheme to secure lasting results.

WOOD UTILIZATION COMMITTEE

The establishing of the National Committee on Wood Utilization by the Secretary of Commerce in 1925, at the suggestion of the various industries interested in the better utilization of wood, is another outgrowth of the work of the Central Committee on Lumber Standards. The new body has employed a staff to work with trade associations and individual companies in developing methods of eliminating waste of effort and material in all stages of wood utilization—logging, milling, drying and seasoning, storage, handling, and fabrication.

Among the groups definitely cooperating with this committee are the following: American Railway Association; American Railway Engineering Association; National Association of Railroad Tie Producers; National Association of Wood Turners; American Paper and Pulp Association; American Institute of Mining and Metallurgical Engineers; American Institute of Architects; Associated General Contractors; the National Grange; Automobile Body Builders; Western Society of Engineers; National Association of Real Estate Boards; National Association of Builders' Exchanges; United States League of Local Building and Loan Associations; American Society of Civil Engineers; American Society of Mechanical Engineers; National Fire Protection Association; American Society for Testing Materials; and Building Officials' Conference.

SIMPLIFICATION OF DIMENSIONS

Simplification of dimensions of building materials has been carried out in a great number of branches of the industry. Committees have been appointed by the Secretary of Commerce, on request of the industrial associations, covering brick, steel, roofing, slate, and lumber, and in each case the consuming trade or the consuming public through some public agency has been represented in the deliberations and conclusions of these committees.

The major simplifications reached in this manner include the elimination of 60 per cent of varieties in softwood yard lumber and structural timbers, the establishment of one standard size of common brick in place of 44 sizes, 19 types and sizes of hollow building tile instead of 36, 11 cross-sectional sizes of reinforcing bars instead of 40, and so on through the 25 items entering directly or indirectly into building and construction. (See Chapter VII.)

INCREASED EFFICIENCY IN CONSTRUCTION

The building industry has been handicapped in the development of more efficient practice and construction methods because of the widely scattered nature of its units and the absence of a sufficiently large and well integrated group of men of professional type interested in the development of more efficient methods. It has had to depend largely on the developments made by relatively few firms, by designing and architectural engineers, and by manufacturers of equipment of various types. However, work along this line is now being done in the committee on methods of the Associated General Contractors, in the construction division of the American Society of Civil Engineers, and in engineering schools.

The program of study and research in this field includes the place of various types of mechanical equipment in different types of build-

ings, cost studies of small-house construction showing the relation of varying methods to different items, and analyses of total development and construction costs, public and private, per home in row-house developments compared with similar costs per home in developments with detached or semidetached houses.

STANDARD DOCUMENTATION

More than 346,000 copies of the standard contract document copyrighted by the American Institute of Architects were sold during the year 1925, and it is reported that there has been practically no litigation in connection with contracts made in accordance with the standard form. A committee representing the American Institute of Architects, the National Association of Builders' Exchanges, and other organizations drew up the original edition. There have been comparatively few changes since that time, the latest having been made in 1924 by a similar committee which met at the invitation of the Associated General Contractors and was sponsored by the Secretary of Commerce. The advantages of the standard contract form arise partly from its inherent fairness both to the owner and to the contractor and from the workability of its provisions, which reduce disputes and delays to a minimum, and to the fact that it is well known to architects, builders, and the public. Neither party has to employ a lawyer to find out whether a "joker" is hidden somewhere in fine print. The essentials of each contract can be filled in with a minimum effort. Its use in building contracts represents a development in many ways comparable with that of the one-price system in retail stores or the adoption of the uniform negotiable instruments act by a majority of the States.

A clause providing for arbitration of all disputes between the owner and contractor is considered one of the most notable features of the standard-contract agreement. The details involved in the construction of a building as to quality of materials and workmanship and the different minor items, such as finish and trim, are too numerous to be specified completely in an ordinary business transaction. For this and other reasons there are endless possibilities for controversy between the owner and the contractor, which furnish the grounds for ill feeling and litigation. Provisions that questions shall be arbitrated under circumstances that permit rapid decision by a fair and impartial arbitrator do much to assure a reasonable attitude on the part of the owner, the architect who represents him, and the contractor.

The documents referred to thus far are so phrased as to apply to building construction but not to highways and certain other types of public works. In 1924 the committee which revised the building-

contract form also drew up forms for these other types of work. Owing to their acceptance as fair by official action of the groups whose representatives drew them up, they are coming into wide general use. In each case of the drafting of a standard-contract form, every word in every paragraph has been carefully scrutinized by representatives of trade associations, and every interested individual has been able, through his association, to make his view known.

Another step in the same direction has been the drafting of standard specifications covering the use of specific building materials for a given type of work in building construction. Such specifications have been prepared by the Indiana Limestone Quarrymen's Association, the National Slate Association, and the Associated Tile Manufacturers. Specifications for glazing have been adopted by the New York Building Congress and through trade association channels their use may be extended to other cities. The American Institute of Steel Construction has likewise drawn up a set of specifications to be used in the design and erection of structural steelwork. The American Railway Engineering Association has developed standard specifications for bridges and other types of construction representing a program carried out from the point of view of the owner or user of construction.

MUNICIPAL BUILDING AND PLUMBING CODES

A building code aims to protect the public safety, health, and general welfare by assuring soundness and stability of structures and reasonable protection to life and property through regulations as to exits, fire-resistive construction, and other precautions against fire and conflagration hazards. To secure uniformity in building inspection, building ordinances commonly prescribe the thickness of masonry walls, the maximum allowable stress which may be used in design, the fire-resistive properties of interior partitions in large buildings, and protection against fires starting from poorly constructed chimneys.

A city council or a committee of a city council, in passing on the technical points involved in framing building-code regulations, relies to a certain extent on expert local technical advisors who, as a matter of practice, are usually men prominent in the activities of local branches of trade associations. Framers of building codes have available the studies made by many of the important national trade associations which deal with the use of their respective products. In addition, there are the reports of the Department of Commerce Building Code Committee, which is composed entirely of professional men, namely, architects, engineers, a former building official,

and a structural engineer of the United States Forest Products Laboratory.

The issuing of the Building Code Committee's recommendations has been of assistance to many communities and to the manufacturers of various commodities in having unfair and uneconomical restrictions amended in conformance with the best practice. Adoption of the recommendations of this committee permits savings of 10 to 20 per cent in the construction of brick walls, installation of plumbing systems, and other elements of small houses, compared with costs under many of the codes which have been replaced. At the same time safety is assured and sound, durable construction is encouraged. The subjects covered by the committee's reports include "Recommended minimum requirements for small dwelling construction," "Minimum live loads allowable for use in design of buildings," and "Recommended practice for arrangement of building codes." These have been utilized in framing municipal code provisions in States as widely separated as California and Massachusetts; Louisiana and Minnesota; Georgia and Montana.

CITY PLANNING AND ZONING

The movement to promote a more harmonious physical development of cities has received a great impetus in recent years. City-planning commissions have been created in hundreds of cities to prepare plans for the physical development of the city as a whole, and to promote adherence to the plan by the city authorities and private citizens. As part of this movement more than 500 municipalities, containing more than half the urban population of the country, have adopted zoning ordinances. These ordinances divide the city into districts and prescribe for each district the use to which buildings may be put, their height, and the area of the lot which they may cover. Such ordinances help to protect the residential districts from unnecessary intrusion by industry, insure that neighborhood stores are grouped together at convenient points, and, in general, promote stability in the use and value of real property.

This movement has been promoted by the National Association of Real Estate Boards. A former president of that organization and members of the civic development department of the Chamber of Commerce of the United States serve on the advisory committee on city planning and zoning of the Department of Commerce. These organizations, as well as the American Construction Council, the American Institute of Architects, and the American Engineering Council have city planning and zoning committees which work in cooperation with the Department of Commerce committee and other interested groups.

MECHANICS' LIEN LAWS

Mechanics' lien laws which enable a laborer on a construction job to collect his wages at the end of the week if the contractor who employs him goes bankrupt or defaults exist in nearly every State, and there has been no serious question as to their justice. There are States, however, in which the home owner, for example, may pay his contractor in good faith. When the home is finished, if the contractor goes bankrupt or disappears, the owner may then be confronted with mechanics' liens for several thousand dollars, which he is obliged to pay or surrender the house for a forced sale. In other States the material supply man has practically no equivalent protection if the owner or the contractor defaults; and between the two extremes there are laws of all varieties, some of which no one claims to understand.

The situation accordingly led a number of leaders in trade associations connected with the building industries to suggest that some more constructive and unified program be inaugurated. Instead of urging an intensification of existing methods, which would have meant that more groups, with more proposals than ever before would have appeared at each legislative session in the 48 States, the Secretary of Commerce was asked to appoint a committee representing all groups concerned, which would draft an act, submit it to public discussion throughout the country, and then see if agreement could not be obtained on provisions which would command support from every group as being in the interest of fairness and justice to all.

STIMULATION OF HOME OWNERSHIP

The greatest single market of the construction industries is in home building. Since many groups contribute products toward the building of a single home, the problem of advertising by a single concern other than a local retail dealer or builder to reach the ultimate consumer is very difficult. Accordingly national trade associations of building material producers have engaged in extensive cooperative advertising campaigns to stimulate interest in home buying, as well as the use of particular products in dwelling construction.

The long-sightedness of some of the work in this field is shown by the fact that the National Lumber Manufacturers' Association, the National Association of Real Estate Boards, and other bodies contribute to the work of the American Savings, Building, and Loan Institute. This organization aims to further the extent and usefulness of local associations in financing home buyers and home builders. This serves to increase the market for homes and to train employees and officers of building and loan associations in the underlying principles and in the most efficient modern methods.

CHAPTER XV

RAILWAYS AND PUBLIC UTILITIES

The trade associations representing railways, street railways, and gas and electric producing companies are characterized by their common concern with Government regulation, the importance of their public relations, and the highly developed specialized branches or committees through which they interchange experience and the results of study on all phases of management and operation. The last-named characteristic is doubtless due in no small measure to the fact that each company has more or less of a monopoly within its territory, and it is clearly evident that each company gains by interchange of information which may lead to reduction in operating costs.

The activities of associations of shipowners are, for the most part, different in their emphasis.

RAILWAYS

The American Railway Association represents all the important railways of the country in matters relating directly to operation. It is the successor of the General Railway Time Convention, which, in 1883, after a number of years of conferences, worked out the first real standard time system for the country.

The car service division is an outstanding part of the American Railway Association. It was thoroughly reorganized in 1921 and has 14 district offices which obtain information as to needs for cars within their respective districts. The district offices arrange for pooling the freight cars of various types within their assigned area and transmit to the main headquarters in Washington a statement of their needs from outside. The central office in Washington is thereby enabled to effect a practical pooling of freight-car equipment throughout the country. This arrangement differs in one very important respect, however, from the pooling under Government control during the war, in that it requires prompt return of cars to the company which owns them and which has had them designed and kept in condition to suit the particular needs of the shippers within its territory.

Since 1923 the car service division has been able to function more effectively through the establishment of regional shippers' advisory boards. These are voluntary organizations of shippers and receivers of freight, which meet from time to time to discuss with railroad

representatives their traffic problems and probable needs for cars. In each region there are committees for different types of commodities, and in many cases these committees are composed of men representing trade associations. The railroads and the car service division are thus in a position to learn from representative shippers and receivers their probable needs for weeks and even months in advance. From the point of view of a shipper, or of a trade association representing shippers, the regional boards provide a direct channel for making wants known in advance. The method adds to the serviceability of the rolling stock of the country and has obviated the need of large capital expenditures in that direction.

The recent situation in Florida has given a demonstration of such voluntary cooperation. Embargoes on different classes of material entering the State were removed in August, 1925, without intervention by the Interstate Commerce Commission. So much material was shipped in, much of which had not been sold, that the terminals were greatly overcrowded. A separate unit of the Southeastern Shippers' Advisory Board was formed to handle the situation and its local units began work on the basis of the requirements of the receivers of the State.

If the demand of a given district exceeded the number of cars that could be shipped into it, permits to receive cars were scaled down proportionately. Thus there was put into effect a system by which the persons receiving freight determined among themselves what should come in instead of having the matter settled arbitrarily from the outside or having a free-for-all scramble in which not only they but shippers would participate.

Cooperation between railroads and shippers, especially since the creation of the regional advisory boards, has resulted in loading to fuller capacity and in quicker loading and unloading of cars—an important factor, since it is calculated that freight cars spend more than one-third of the time in shippers' or receivers' hands.

The American Railway Association also has divisions designated as construction and maintenance, electrical, engineering, mechanical, medical and surgical, purchases and stores, signal, and telephone and telegraph.

Practically every group of railway officials has its own separate organization or branch of the American Railway Association, through which they can exchange new ideas and experience. The Railway Accounting Officers' Association studies methods of cost analysis to determine where savings can be effected, how to obtain better results from the money spent in cost keeping, and how the preparation of reports for the Interstate Commerce Commission can be facilitated. Standard forms have been worked out under its auspices.

The American Railway Engineering Association serves as a medium for advancing the best practice in the design and construction of trackage, terminals, and structures. This association is represented on the joint committee on uniform contracts. It is concerned with 23 projects which have been completed or are under way under the auspices of the American Engineering Standards Committee, ranging from the industrial safety code to specifications for insulated wires and cables, and dimensional standardization of pipe flanges and fittings. In another project under the same auspices for formulating standard specifications for railroad ties it is acting as joint sponsor with the United States Forest Service. Through the American Society for Testing Materials specifications for rails have been worked out, including dimensional standards for many items used in railway construction, maintenance, and rolling stock.

Results of some of this work may be shown in a few figures on railroad operations. During the year ended June 30, 1926, car loadings amounted to 51,916,798, compared with 40,657,504 in the fiscal year 1922, an increase of 27 per cent, while the average number of employees was 1,782,733 in 1926, compared with 1,643,000 in 1922, an increase of only 8 per cent. The ton-miles of revenue freight handled per employee rose during the period from 213,960 to 264,152, or 23 per cent, while the revenue per ton-mile decreased from 1.239 cents to 1.092 cents, or 9 per cent. The average trainload increased 15 per cent, and the average car miles per car day, 29 per cent.

Just as the American Railway Association and its branches cover technical and operating problems of the railways among themselves and with their customers, the Association of Railway Executives considers matters of legislation and general public relations. This association arranges for appearance before the Interstate Commerce Commission and legislative committees and prepares statements for the public explaining railway problems. It is greatly aided in this matter by the Bureau of Railway Economics, which, though a separate organization, works very closely with the Association of Railway Executives and the American Railway Association. The bureau compiles statistics of car loadings, car shortages, car surpluses, and other data currently, well in advance of similar reports published by the Interstate Commerce Commission.

DOMESTIC PACKING

The Department of Commerce advisory board on domestic packing includes representatives of Government departments, container manufacturers, the paper-board industries, railway and express companies, purchasing agents, lumber manufacturers, box manufacturers,

and other groups. This committee, in a report [9] on paper-wrapped packages, suggested practices for wrapping, tying, and addressing paper-wrapped packages, worked out with reference to the cost of wrapping and losses under different methods. Better packing was an important factor in the 48 per cent decrease in railroad claims between 1921 and 1924, a decrease from approximately $92,000,000 to $48,000,000.

Since the publication of the bulletin on paper-wrapped packages additional reports on packing for domestic shipment have been issued by the Bureau of Foreign and Domestic Commerce and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, or from the district or cooperative offices of the bureau. Other reports of the series are:

Domestic Commerce Series No. 10.—Fiber Containers.
Domestic Commerce Series No. 11.—Cleated Plywood Boxes.
Domestic Commerce Series No. 12.—Wire-Bound Boxes.
Domestic Commerce Series No. 13.—Cooperage and Steel Barrels.
Domestic Commerce Series No. 14.—Wooden Boxes.
Domestic Commerce Series No. 15.—Nailed Wooden Crates.
Domestic Commerce Series No. 16.—Baling.

ELECTRIC RAILWAYS

The American Electric Railway Association has been a central point of contact for the electric railways in their problems of rising costs without corresponding fare increases, of increasing automobile traffic, and of heavy local taxation. It has affiliated with it four groups representing accountants, claims departments, engineering and transportation, and traffic. In addition to its work on economies of operation, it has made special studies of accident prevention, coordination of rail and autobus service, and financing problems.

It has also served as a central source of information with regard to rates and various conditions imposed on the street railway companies by local regulatory bodies and city governments, as well as on wage rates. Wise public regulation of utilities is based very largely on the full knowledge of the facts by both sides. The American Electric Railway Association, on the one hand, and the Association of State Utility Commissions, on the other, have contributed to this end, and have thereby helped to restore the trolley companies to a position where they are able to maintain adequate service in most cities. In a case arising in a given city, for example, the local company may be able to present data showing whether its cost of operation is low, and by comparison with other cities is able to show where

[9] Published by the Bureau of Foreign and Domestic Commerce as Domestic Commerce Series No. 3. Price, 5 cents.

conditions imposed upon it may be unusually severe. The utility commissioners' organization is able to render similar service to regulating bodies.

ELECTRIC LIGHT AND POWER

Improved technical efficiency in the generation of electricity has been promoted by the studies of committees of the National Electric Light Association. These committees have made studies of problems of power-plant design and operation. The technical national section includes committees on accident prevention, electrical apparatus, hydraulic power, inductive coordination, meters, overhead systems, prime movers, and underground systems. Each one of these committees has from 5 to 23 subcommittees, and their reports represent the latest developments in practice. The readiness of electric power companies to exchange information is, of course, due partly to the fact that they are usually noncompetitive, each having more or less of a monopoly within its own territory, but it is symptomatic of a tendency in industry generally. The increased efficiency in electric power production may be shown in the reduction from 3.1 pounds in 1919 to only 2.1 pounds in 1926 (only 1.1 pounds in some stations) in the amount of coal required by the average central stations to generate a kilowatt-hour of electricity.

The public relations national section of the association has committees on cooperation with educational institutions, industrial relations (with subcommittees on compensation, employment, health, thrift plans, and training and education), manufacturers' advertising, public relations, advertising and information, and relations with financial institutions. The association carries on cooperative advertising in the interest of the industry.

The customers' ownership committee has served to interest a large number of companies in its program and provides information as to the best methods, to companies desiring to sell stock to their customers. The electric power companies of the country are acquiring more than 250,000 new stockholders a year under the customer and employee ownership plan.

The accounting national section of the association has a number of committees, while general and special national committees are devoted to rural electric service, insurance, education, water-power development, rate research, public policy, electrification of steam railroads, and electrical resources of the Nation.

The commercial national section has committees devoted to customer relations, domestic cooking and water heating, electricity in the home, industrial lighting, load factor, merchandising, commercial cooking, industrial heating, refrigeration, as well as organization

and management, transportation, and wiring. The latter committee has subcommittees on the national electric code rules, and on uniform electrical ordinances.

The National Electric Light Association cooperates with a considerable number of other national bodies. It designates representatives and alternates on six committees and subcommittes of the American Committee on Inductive Coordination. On the American Engineering Standards Committee it sponsors the light and power group and is represented on 30 sectional committees, as well as on the safety code correlating committee. It cooperates in the organization and maintenance of State public utility information bureaus, and is represented on the committee of the American Institute of Electrical Engineers, the American Society for Testing Materials, and the American Society of Mechanical Engineers, and in the American Uniform Boiler Law Society. It has six members on the Committee on the Relation of Electricity to Agriculture, which includes representatives from the United States Departments of Agriculture, Commerce, and Interior, the American Farm Bureau Federation, American Society of Agricultural Engineers, and the Power Farming Association. It is also represented on the Electrical Safety Conference, the International Chamber of Commerce, the Joint Committee of Public Utility Associations, the Joint Conference Committee on Standards, the National Fire Protection Association, the National Research Council, the Society of Automotive Engineers, and the United States National Committee of the International Electro-Technical Commission.

MANUFACTURERS OF ELECTRICAL EQUIPMENT

In September, 1926, the National Electrical Manufacturers' Association was organized to take over the work of the Electrical Manufacturers' Council, the Associated Manufacturers of Electrical Supplies, and the Electric Power Club. In this consolidation of interests the Associated Manufacturers of Electrical Supplies became the supply division of the new association; the Electric Power Club became the apparatus division; and some of the activities of the three merged organizations will be conducted through the policies division of the association as a whole. The association includes more than 30 organized branches of the industry, with an estimated volume of business in excess of $1,500,000,000.

The objects of the association, as set forth in the constitution, are to promote the interests of the manufacturers of electric apparatus and supplies in manufacturing, engineering, safety, transportation, and other industrial problems; to collect and disseminate information of value to its members or to the public; to appear for its

members before legislative committees, governmental bureaus, and other bodies in regard to matters affecting the industry; to promote a spirit of cooperation among its members for the improved production, proper use, and increased distribution of electrical apparatus and supplies; to increase the amount and improve the quality of electrical service to the public.

The radio section of the policies division is now investigating the possibilities of the cross licensing of patents, as practiced by the National Automobile Chamber of Commerce.

Through a standing committee the association has just issued the fifth edition of Standard Accounting and Cost System Manual.

As a member of the National Industrial Conference Board, the association furnishes to members timely information on employee relations.

The association has formulated a uniform electrical ordinance and uniform statute and is promoting their general adoption as a means of furthering recognition of the established National Electrical Code and National Electrical Safety Code.

Standardization is a major activity of the group, as evidenced by association representation on the American Engineering Standards Committee, the United States National Committee of the International Electrochemical Commission, the Electrical Safety Conference, and on the various sectional committees of the American Engineering Standards Committee dealing with specific standardization projects. Various sections of the association have also formulated standards.

The National Council of Lighting Fixture Manufacturers, representing more than 80 manufacturers and providing associate membership for jobbers, retailers, and importers, is about to undertake a three-year program of cooperative advertising to develop greater interest in the artistic and decorative effect of lighting equipment. Provision has been made for a national exhibition and for a detailed study of distribution practices and production efficiency.

The Association of Electragists, consisting of contractors and contractor dealers, has developed standard forms and accounting methods and is interested in local electrical codes. It has also developed a standard form for estimates, in accordance with standard cost-accounting methods. This gives assurance against omission of important items and is believed to reduce the uneconomic competition of firms which underestimate their costs and either have to skimp on the quality of work or do business at a loss, this latter procedure gradually destroying their capital and ending usually in bankruptcy. This service also aids the small contractor in setting up his business on a sound basis.

One of the objects of the Association of Electragists is the wide recognition of the "Red Seal" standards for household wiring installations, which establish minimum standards for such work.

The Society for Electrical Development represents the industry as a whole, including the National Electric Light Association, the National Electrical Manufacturers' Association, the jobbers, retailers, and electrical contractors. This organization carries on statistical research and cooperative advertising and devotes a considerable share of its attention to the small consumer. It is in effect a trade-promotion body.

An electrical safety code has been worked out as an American engineering standards project, sponsored by the Bureau of Standards of the Department of Commerce, which has had the cooperation of other Government bureaus, the Interstate Commerce Commission, State public utilities commissions (among which are those of Connecticut, Illinois, Iowa, Maryland, New York, Oklahoma, and Pennsylvania), municipal officials, and such national organizations as the National Electric Light Association, the American Electric Railway Association, the American Gas Association, the American Institute of Electrical Engineers, the American Railway Association, the International Association of Electragists, the Association of Governmental Labor Officials of the United States and Canada, the Illuminating Engineering Society, the National Bureau of Casualty and Surety Underwriters, the National Association of Mutual Casualty Companies, and the National Safety Council.

This code is recognized by insurance companies in approving electrical installations from the point of view of fire hazard and has been adopted by many State bodies and municipalities to govern electrical installations in buildings. It also is an important governing factor in specifications for electrical work of all types.

MANUFACTURED GAS

The American Gas Association has promoted the efficient production and wider use of gas by much the same methods as those used by the National Electric Light Association. It has done much to educate the public as to the B. t. u. content or heat-producing capacity of gas as the essential quality. The association has encouraged the use of gas for cooking, heating, and industrial uses and has developed helpful instructions for householders in the more effective use of gas.

In 1925 it established a testing laboratory at Cleveland, Ohio, for the purpose of testing as a basis of granting approval of various gas appliances, such as flexible gas tubing, gas ranges, and space

heaters. The standards used in the work were prepared by committees of the American Gas Association. These committees provided equal representation for manufacturers and gas companies and contained members of the Bureau of Standards, Bureau of Mines, Public Health Service, and Master Plumbers Association of America. Within a little more than a year 14 different types of flexible gas tubing, 44 models of space heaters, and 1,715 gas ranges had met the requirements and had been approved. Tentative approval requirements have also been prepared for water heaters and house-heating appliances.

CHAPTER XVI

AUTOMOBILES, AIRPLANES, AND HIGHWAYS

AUTOMOBILES

The National Automobile Chamber of Commerce, with its predecessors, has represented most of the companies of the automobile industry for 26 years. The membership now comprises 83 companies, 42 of these producing passenger cars, 4 taxicabs, 34 trucks and busses, and 3 electric vehicles.

One of the major activities of the association is the arrangement made between its members for the cross licensing of hundreds of patents. This patent agreement covers all items except basic patents materially affecting design. A method has been mutually agreed upon whereby certain patents are determined as basic, and an arrangement has been made so that a suitable royalty can be collected when such patents are used by other than the patentee. This working arrangement has resulted in immeasurable savings to the industry through elimination of annoyance and cost of litigation regarding patent infringements, and at the same time has enabled the members to enjoy the protection and privilege represented by the use of basic patents.

The foreign-trade section of the National Automobile Chamber of Commerce has been instrumental in bringing about the affiliation of the American industry with that of the European countries and has also done much to create better feeling, with resultant improved working relations, between industrial competitors of the various nationalties. This section also is responsible for the calling of the annual World Motor Transport Congress, in the sessions of which are brought together each year manufacturers, exporters, importers, and retail dealers from all parts of the world. In these sessions there is an interchange of ideas that has done much to raise the manufacturing and merchandising of automotive equipment to a higher plane internationally.

The highway section of the association is active in advocating improved highways located according to economic needs and properly financed for construction and maintenance. These activities, primarily inaugurated to apply to the United States, have now extended to all countries of the world. A legislative section follows

the promulgation and final adoption of laws and regulations that affect the manufacture, selling, or operation of motor vehicles. Another section studies railroad rates as applying to automobile shipments, both foreign and domestic, and handles freight claims for members and appearances in rate cases for the automobile industry.

The association sponsors two national annual automobile shows which are participated in by the manufacturers themselves and which, since the earlier days of the industry, have contributed greatly to the development of popular interest in the automobile and to the expansion of its use.

The Motor and Accessory Manufacturers' Association has a membership of over 400 firms, including those manufacturing automobile parts, accessories, and service equipment, and those supplying these companies with materials. It supervises the conduct of the parts, accessories, and service equipment sections of the two national automobile shows held annually, assists in the adjustment of claims of its members against transportation companies, and maintains a credit division which supplies the members with credit information relative to domestic and foreign wholesale outlets. The association maintains domestic and foreign trade promotional activities on behalf of its members.

The membership of the Automotive Equipment Association is comprised of several hundred jobbers and manufacturers in the automobile parts, accessories, and service equipment branch of the industry. One of the leading activities of the association is to conduct frequent regional conferences in the United States and Canada to assist their jobber members in working out their many sales problems. Annually the association sponsors an exhibition which runs concurrently with business sessions. The members, through the association, publish each year a comprehensive catalogue which illustrates and describes the products of each manufacturer member. The foreign trade promotion work of the association is carried on by a committee set up for this purpose.

To the Automotive Manufacturers Association belong several hundred manufacturers and jobbers of automobile parts, accessories, and service equipment. One of the principal functions of this association is the maintenance, at a central point, of a permanent exhibition of its members' products which is known as the "Motor Mart." This service feature makes its possible for a prospective wholesale buyer to inspect readily the products of an extensive group of manufacturers. Other trade promotional activities of this association are similar in most respects to those of the two organizations discussed in the paragraphs immediately preceding.

To the National Association of Engine and Boat Manufacturers belong the leading concerns producing smaller water craft, marine

engines, and such accessories and equipment as these employ. A principal activity of this association is to promote interest in pleasure craft through organizing and supervising motor-boat regattas.

The National Standard Parts Association comprises about 100 manufacturers of automobile replacement parts, accessories, and service equipment. An educational campaign has been carried on by the association among manufacturing and jobber members for more efficient business practices. A special bureau audits the freight bills of members and adjusts freight claims. Promotional work both in foreign and in domestic trade has been conducted by the association, on its own initiative as well as in cooperation with other service agencies. The Motor Cycle and Allied Trades Association membership comprises firms manufacturing motor cycles, also those who furnish material to cycle manufacturers. The principal activity is the sponsoring of motor-cycle races, endurance runs, and sporting clubs, to increase the popularity of this form of transportation.

The Society of Automotive Engineers is a technical body representative of and cooperating with all branches of the automotive industry. The principal purpose of the society is to suggest standard practices that tend toward elimination of waste, more efficient production methods, and the betterment of automotive products. The S. A. E. standards and recommended practices now comprise more than 600 specifications. Some of these are in universal use; a large number are in general use; all have marked educational value. Their use has been reliably estimated to have produced a saving of at least 15 per cent in the total annual retail value of domestic automotive products.

The American Brake Lining Association carries on educational work with regard to brake testing and highway safety. The Trailer Manufacturers' Association of America works on commercial research statistics on trade relations, on cooperative advertising, and on legislative problems. The Automotive Electric Association, representing manufacturers, dealers, and service stations, has been engaged in working out specifications and other standards for automobile batteries and equipment. Its primary purpose is to promote technical progress in its field.

The American Automobile Association has affiliated with it 870 local clubs scattered throughout the entire country; the total membership is now over 1,000,000. It is the largest motorist organization in the world and cooperates with many similar organizations abroad. Present major interests of the association are to bring about greater safety in highway traffic, to induce legislation favorable to the motoring public, to advance highway building programs, and to provide road maps and other touring aids. A bus division has been set up to cooperate with local bus associations.

AERONAUTICS

The Aeronautical Chamber of Commerce of America is representative of the leading manufacturers of aircraft and aircraft supplies in this country. The purpose of this organization, briefly defined, is to foster and promote trade and commerce throughout the United States, including its territories and possessions, and in foreign countries, in the interest of those persons, firms, or corporations engaged in the business of manufacturing, buying, selling, and dealing in aircraft, aircraft motors, and aircraft parts and accessories of every kind. As the interest of its members in selling their products abroad is rapidly growing this phase of the chamber's activities is becoming increasingly important. Up to this time it has been concerned not only with the domestic merchandising problems of its members, but it also has cooperated closely with private and governmental agencies that the use of aircraft in this country might rapidly broaden. This chamber has done much to encourage the development of improved types of aircraft.

HIGHWAYS

The advisory board for highway research connected with the National Research Council, coordinates and supplements research work related to highways. It conducts an annual conference for the different groups interested in safety and in highways. The board operates on a small budget assigned from the funds of the Bureau of Public Roads. Through these two agencies the research and experimental work carried on by State agencies and universities throughout the country is coordinated. The board has also worked out methods for economic surveys to determine the conditions under which developments of different types are justified and to assure that funds which are expended should go where they are most needed.

As an example of the quick influence of research on field methods may be cited the fact that up to 1921 practically all concrete roads were built thicker at the crown than at the shoulders. Experiments showed that the greater thickness was needed at the shoulders, and it is estimated that more than 85 per cent of the concrete roads constructed in 1925 followed this practice.

Much of the technical information such as the above, now available to county road engineers, has been developed by trade associations representing manufacturers and producers of road-building materials. Some of these associations, as mentioned in previous chapters, have extensive field forces of engineers who consult with highway officials concerning the use of particular products and aid in the inspection of projects involving their use.

STREET AND HIGHWAY SAFETY

Two national conferences on street and highway safety have been held in Washington, D. C. Each followed detailed studies by the committee on street and highway safety, supported largely by the American Automobile Association, American Electric Railway Association, Chamber of Commerce of the United States, National Association of Taxicab Owners, National Automobile Chamber of Commerce, National Bureau of Casualty and Surety Underwriters, and National Safety Council. The general object of these conferences was to determine methods by which to reduce the growing number of accidents, which involve the death of more than 22,000 persons a year, a direct economic loss of more than $600,000,000 by destruction of life and property, and a greater financial loss through inadequacy of traffic facilities, amounting to not less than $2,000,000,000 a year. The detailed work of the conference was divided among eight committees, which included representatives of the bodies which helped support the work and of many other associations.

A committee on statistics studied methods by which statistics could be made more comparable and of greater value in determining means of preventing accidents.

A committee on traffic control studied traffic and parking regulations, including the designation of one-way streets, segregation of traffic according to type, and the function of traffic officers.

The committee on construction and engineering investigated such matters as width of highways, rules for securing adequate vision, clearance, illumination, maximum allowable grades for important highways, provision of guard rails, elimination of grade crossings, safeguarding of grade crossings, width of bridges, marking of detours, maintenance of roadway shoulders, standardization and placing of signs and signals, and the use of white center lines on curves and at other points.

The committee on city planning and zoning dealt with the arrangement of streets and highways, the provision of parking and day-storage space for automobiles, the relation between street facilities and development of private property which may be controlled through zoning ordinances, safeguards near playgrounds and schools, planning for proper interrelation of traffic facilities, and the need for a comprehensive traffic and thoroughfare plan.

The committee on insurance took up matters such as the standardization of accident records, standardized drivers' manuals, courses of instruction for drivers of commercial cars, inspection of insured automobiles, coordination of safety work by insurance carriers, certificate of title laws, motor vehicle licensing and impounding laws,

and premiums for safe driving to individuals and communities through the medium of lower rates.

A committee on education dealt with the teaching of safety in the schools, establishment of adequate playgrounds in order to reduce accidents from children playing in the streets, the training of traffic experts and traffic-control officers, selection and training of drivers of taxicabs, busses, commercial automobiles, and electric street cars, and education of the general public.

The committee on the motor vehicle studied design and construction, maintenance of vehicles in safe operating condition, and public control of motor vehicle operation. The report deals with location of controls, brake testing, steering gears and wheel alignment, driver's vision, lights, signals, tires, bumpers, maximum overall width of body and load of motor vehicles, inspection, legislation, and regulation.

The committee on public relations defined the responsibility of different governmental agencies and suggested means of promoting application of the findings of the other committees.

A committee of the National Conference of Commissioners on Uniform State Laws was appointed, with membership overlapping that of the committee on uniformity. The latter committee included, besides representatives of the commissioners on uniform State laws, a representative of the American Engineering Standards Committee, several representatives of motorists' associations, traffic and police officers, State officials, casualty companies, the chief of the Federal Bureau of Public Roads, railway regulating bodies, State highway commissions, State secretaries of state, and the national committee on laws and regulations of the first conference on street and highway safety, whose reports had an important influence on motor vehicle legislation during the 1925 sessions of State legislatures.

The committee advocated that local enforcement of the uniform vehicle code should be supplemented by State administrative regulations and by local traffic ordinances and regulations. It drafted, first, a uniform motor vehicle registration act; second, a uniform motor vehicle certificate of title and antitheft act; third, a uniform motor vehicle operator's and chauffeur's license act; and fourth, a uniform act regulating the operation of vehicles on highways.

CHAPTER XVII

MINING AND OIL INDUSTRIES

COAL

The National Coal Association, consisting of operators of both unionized and nonunionized fields, represents about one-half of the commercial tonnage of the bituminous coal industry. Every mining field is represented in its membership, and 23 local associations are affiliated with it, together with an individual membership numbering several hundred companies.

The National Coal Association deals with matters of concern to coal operators, with the exception of wages and freight rates. It has committees on marketing, safety, research, pool buying, tax and cost accounting, publicity, Government relations, foreign trade, and transportation.

The American Wholesale Coal Association represents about 35 per cent of the wholesale coal trade and has an annual budget of about $25,000. The membership is scattered over 24 States and Canada. In many instances there are local associations of wholesalers in the larger States, but the national association is not a federation of locals. The association informs the members of legislative activities which may affect them, it has a traffic department, a trade-mark bureau, and arbitration machinery, maintains a credit exchange service, and has done work in the field of market research.

Retail coal merchants the country over are organized in local city or county associations. In many States these are affiliated to form State associations. The State and local associations are affiliated to form the National Retail Coal Merchants' Association. The same plan of association is in existence in the Dominion of Canada, where the Canadian Retail Merchants' Association is also affiliated with the National Retail Coal Merchants' Association. Many local associations carry on credit bureaus and freight traffic bureaus. The function of the national association is to take up this work where the local associations leave off. The national association is also encouraging sound cost accounting and has published a pamphlet called "A Simplified Uniform Accounting System for Retail Coal Merchants." This association has a committee on Government relations.

Operators of anthracite mines are organized in the Anthracite Operators Conference, representing approximately 96 per cent of the tonnage. The conference supports an anthracite bureau of information which is devoted to the collection, compilation, and dissemination of information regarding the industry.

Since the war the associations of coal operators and wholesalers have been instrumental in controlling profiteering in boom markets. The measures taken in the strike emergency of 1922 required quick mobilization of operators, shippers, public utilities, and other consumers, and the efforts of these groups could hardly have been exerted in time had it not been for the machinery of the trade associations. Even these might have been better if the associations had been stronger, for, in the opinion of Secretary Hoover, "The instability of the bituminous coal industry and the constant disintegration of its employers' associations through fear of the restraint of trade acts contributed directly to their refusal to enter into negotiation with the unionist miners in 1922 and bear some share of the responsibility for the long strike which then ensued."

Commencing on April 1, 1922, a strike of bituminous coal miners caused a radical decrease in production, but the price of spot bituminous coal at the mines during the entire period from April 1, 1922, to January 1, 1923, averaged $4.19, compared with $6.66 in the corresponding months of 1920, when very much less of an actual shortage existed. The story of how this was accomplished has been told by Secretary Hoover, with special mention of the part played by trade associations, the coal operators, wholesalers, and retailers:

> As it was evident from the situation that a strike was inevitable, this department warned the public of the necessity to make provision in coal supplies against such an event, and undertook, in cooperation with the public utility associations, a general campaign to increase the stocks of coal as security of continued industry. In order that the public should appreciate the situation, the department also undertook a survey of the coal stocks at the end of each month for some months preceding the strike.
>
> As a result of these activities the country entered the strike with by far the largest stock of coal ever known, and the fact that we were able to maintain all commerce and industry throughout the longest strike in history was in no small degree due to this effort.
>
> The strike began on the 1st of April, and at the middle of May a buying panic within a few days raised the price of spot coal to about $3.60 a ton at the mine. As the price of spot bituminous had risen to $12 per ton at the mine in 1920, when production was at the rate of 12,000,000 tons a week, it was evident that some action must be taken if a worse situation were not to arise, with production limited to 4,200,000 tons a week from the nonunion mines.
>
> In the absence of any legislation or any constitutional basis for controlling profiteering, a conference of the producing operators was called at this department, and as a result of these conferences it was agreed that coal prices should not be advanced beyond the Garfield prices plus a reasonable allowance

in each district for the difference in wage scale and costs which had ensued since the war. These agreed maximum prices varied from $2.25 to $3.50 for spot run-of-mine coal at the mine. Approximately 85 per cent of the producing districts voluntarily undertook this arrangement, and the price of spot coal in these areas was restricted to an average of under $3.24, whereas in the districts which had refused to enter the agreement prices rose to as high as $10 per ton at the mines. An agreement with the majority of wholesalers and retailers assured that there should be no increases in stocks of coal.

At the end of July some districts withdrew from the agreement, although some 65 per cent of the nonunion operators held to it until August 15, when the strike was settled and the agreement automatically expired.

There was also a voluntary coal distribution set on foot by the governors of various States and coordinated by an organization set up by the Department of Commerce. Later Congress established Federal distribution upon an official footing. A number of representatives of trade associations cooperated in this work.

The United States Coal Commission was created by Congress in 1922 to make an exhaustive study of the coal industry and to report the facts, with recommendations as to how it might function more effectively. The investigations covered the mining and marketing of both anthracite and bituminous coal. The National Coal Association, through the bituminous operators' special committee, which was its representative before the Coal Commission, carried on a variety of studies, spending half a million dollars on this work. The committee filed 31 briefs with the commission and collaborated in the preparation and submission of 5 briefs by local associations of bituminous operators. These briefs covered such subjects as coal economics and accounting, including methods for analyzing data as to costs and determining the rate of profit, reports on the number of investors, the treatment of income and excess-profit taxes in determining the margin of profit, and the proper treatment of coal reserves in determining the present value of mining properties. Still other briefs treated of social conditions, the company town, and variations in living costs. The influence of unionism on the coal industry was the basis of other special studies and reports. The Anthracite Operators Association, through their general policies committee, filed 7 briefs, the American Railway Association filed 4, the National Retail Coal Merchants Association filed 1, and during the same period the United Mine Workers Union submitted 11 briefs and local committees of the union submitted 5. The American Wholesale Coal Association assisted the commission with its advice. The National Coal Association also rendered material assistance in giving publicity to the findings of the United States Coal Commission.

As the Coal Commission was drafting its final report, issued September 23, 1923, the bituminous operators' special committee, through its chairman and counsel, submitted a plan for the collection and pub-

licity of accounts on a voluntary basis through the trade associations. This plan represented such a substantial and gratifying development of opinion through the industry that the commission heartily commended it. "Pending the enactment by Congress of a law to provide for complete and compulsory publicity," stated the commission, "this plan of voluntary reports would furnish much of the information required for the bituminous industry, and would thus bridge over the period between the end of the present commission's investigation and the beginning of the permanent system of fact finding and reporting recommended by it."

An outstanding example of the usefulness of trade associations was the agreement ending the five-month anthracite strike of 1925–26. The general policies committee of anthracite operators, which represents 100 per cent of the anthracite production in labor matters, joined with the miners' union in a five-year wage contract, with provision for readjusting wages during this period by reference to a joint arbitrating body to be set up by the two parties.

The American Mining Congress has a coal-mining branch of its national standardization division, consisting of representatives of mine owners and operators, manufacturers of mining equipment, consulting engineers, and representatives of the United States Government. This branch is at work on problems relating to underground transportation, mine drainage and ventilation, underground power transmission and power equipment, and mine timbering. The congress has also issued a handbook of standard and approved American coal-mining methods, practice, and equipment.

The problem of coal storage has been recognized as an important factor for the ultimate seasonal stabilization of coal mining and also as a factor in the protection of the public during strikes. The subject was especially studied by the American Engineering Council, which issued a report in 1924 on the relative merits and costs of various methods of coal storage.

NONFERROUS METALS

The nonferrous metals industries were largely expanded during the war and underwent a severe period of readjustment in 1921, owing in considerable measure to the accumulation of large stocks in the hands of those who hoped to profit by continuing rising prices. The American Bureau of Metal Statistics was established by the industry to obtain all facts and figures in regard to production, consumption, stocks, prospective demand, and prices in various markets with regard to certain nonferrous metals. The existence of this service is one of the best guaranties against a repetition of the situation of 1920 and 1921.

The expanded capacity of the industry led producers to seek new markets, and in this they have had great success. The American Zinc Institute, for example, was organized to discover new uses for zinc and to promote the use of zinc wherever it could be utilized to good advantage. This organization has also carried on an extensive campaign to promote the term "zinc" instead of "spelter," and of "zinc coated," instead of "galvanized." In cooperation with producers of zinc-coated steel sheets, it has established a standard of thickness for the coating, which, it is believed, will do much to eliminate the manufacture and use of grades whose quality is apt to give unsatisfactory service.

The Copper and Brass Research Association undertook a trade extension campaign along similar lines and has succeeded in encouraging a much wider use of copper and brass products in construction and building equipment. It has made a study of the use of copper in 50 industries. Consumption of copper in 1925 was greater than in any previous year, even during the war, being 7 per cent above the record for 1924, and more than 78 per cent greater than in 1913.

The copper industry has become more stable since improved statistical data have been available. In 1921, for example, production of primary copper by mines in the United States ranged from a maximum of 44,563 short tons in March, to a minimum of 8,894 tons in July. In 1925 the maximum was 74,901 tons in March and the minimum 67,400 tons in November. The production of copper by smelters from domestic and foreign ores shows a similar increase in stability.

PETROLEUM

Owing to the almost universal use of the automobile and gas engine, the ability of the oil industry to refine and distribute a good quality of gasoline at a reasonable price is of direct interest to practically every American family. The domestic production of crude oil increased from 266,000,000 barrels in 1914 to 756,000,000 barrels in 1925. During the same period production of gasoline and naphtha increased from 1,460,000,000 gallons to 10,886,000,000 gallons. The industry has been faced at various periods with demands for governmental regulation of various types, and it also has occupied much public attention owing to the fact that the rate of production under methods now employed would seriously exhaust the underground oil resources of the country. The industry, through the various bodies which represent it, has shown a willingness to bring about cooperation among its various components and with public agencies to secure a solution of its problems. During the year 1921, following conferences with Government officials, a number of oil companies added largely to their holdings of foreign oil lands in

order to assure a continued supply under the control of American interests.

The American Petroleum Institute, composed of individuals engaged in the industry, has maintained a research department and serves as a clearing house for exchange of information on improved technical processes, not only in production but in eliminating loss in storage through reduction of fire hazard and of evaporation. The institute has assisted the Bureau of Mines in its work along these lines and also in the compilation of monthly and annual statistics relating to production, consumption, and stocks of crude oil and refined products.

The Bureau of Mines uses the institute's monthly production figures for California as they are furnished by that body. The institute also issues a weekly report on crude-oil production, the number of wells producing, and the number of new wells brought into production during the week.

Information has been lacking as to the amount of fuel oil which is being consumed yearly by the various industries in the United States; the particular conditions which result in the use of oil as fuel by these industries and the trends apparent in such use; and the extent to which oil has competed in the past with other fuels and the present tendencies of such competition. The lack of such information was stressed during hearings before the Federal Oil Conservation Board, and the American Petroleum Institute shortly thereafter (in the spring of 1926) entered into a cooperative agreement with the Bureau of Mines covering a joint study of the consumption of fuel oil. In this study oil marketing companies are supplying information as to their sales, dividing them by territories and industries, and the individual reports are combined to supply totals showing fuel-oil consumption by industries in each State or marketing territory. The study also relates to the movement of crude oil and refined products from producing centers to consuming areas to determine the extent to which consuming areas are dependent on the various producing fields of the country for their oil supplies.

The American Oil Burner Manufacturers' Association has undertaken a similar study with the Bureau of Mines to determine the rate of consumption of oil in household heating plants. A study of stream pollution and its effects and of economical methods of reclaiming waste material from oil refineries has been undertaken jointly by the American Petroleum Institute, the Bureau of Standards, the Bureau of Mines, and various State authorities.

Among the institute committees reporting at the 1926 convention were those on standardization of specifications for iron and steel pipe; standardization of wire rope and manila cordage; standardi-

zation of belting; standardization of rig irons; standard rigs and derricks; rotary drilling equipment; pumping equipment and engines as applied to the production of oil; cable drilling tool joints; oil-field boilers; steel storage and production tanks; uniform method of accounting; railroad transportation, including car service and method of testing vapor pressure; public relations; fire prevention; method of calibrating tank cars; and a committee on petroleum products and lubrication cooperating with the American Society for Testing Materials; also a special correlating committee on gauges and gauging practices. Papers at the meeting included reports on various operating problems, summaries of research on refining and use of petroleum products, accounting, and a joint meeting with the American Association of Petroleum Geologists on the Nation's petroleum supply. The mid-continent section of the American Society of Mechanical Engineers cooperated with the institute in holding a group session on corrosion.

The interchange of technical experience at meetings of the American Petroleum Institute, the Association of Petroleum Geologists, and the petroleum section of the American Institute of Mining and Metallurgical Engineers has its counterpart among the operating engineers and employees in the oil fields. In all the oil-producing sections of the country there is a free interchange of experience and ideas with regard to oil-drilling equipment, and in the California fields there is a free interchange of data obtained during the drilling and operation of oil wells which is most helpful to developers of neighboring wells, especially in the case of "wildcat" wells in unproved territory. Such exchange of information is said to be common in Texas and Oklahoma, and to a lesser extent in some other fields west of the Mississippi.

The institute has sought to establish standards for measuring quantities of oil, and to establish uniform practices in determining specific gravity. It has also agreed on a standardization program for oil derricks and other apparatus used in producing areas. Other parts of an extensive standardization program are being worked out by committees. Through gifts from private individuals the institute is undertaking an extensive program of research covering 21 different subjects relating to the production, physics, and chemistry of oil in an effort to obtain a larger percentage of the oil that lies underground and make it possible to produce oil more economically. The institute has made known the possibilities in these two directions and has prepared information for the use of the Federal Oil Conservation Board, which was appointed in 1924 by the President to determine what policy the Government should pursue with regard to the petroleum industry, with particular reference to continuation of adequate supplies.

The National Petroleum Association consists of a number of the producing and refining companies. Its officers have appeared before many Federal departments and congressional committees. Its various departments deal with manufacturing problems, standards and tests, traffic and transportation, accounting, statistics, fire and accident prevention, and other usual activities of trade associations.

The National Petroleum Marketers Association is a cooperative body of smaller refiners and marketing companies. It maintains an economic research bureau which is conducting a cooperative advertising campaign.

Most of the governmental and other research with regard to petroleum products is carried on in cooperation with trade associations. The Bureau of Standards study of the motor-fuel problem, for example, is carried on with the cooperation of the American Petroleum Institute, the Society of Automotive Engineers, and the National Automobile Chamber of Commerce. This study relates not only to means of obtaining more power per gallon of fuel and such related problems as "knocking" in motors, but also to the corrosion of metals in internal-combustion engines. The institute cooperates with the Bureau of Mines on the toxicity of gases from oils containing a high sulphur content, and with the Bureau of Mines, the Bureau of Standards, and the American Institute of Mining and Metallurgical Engineers on the heat treatment of steel. The Bureau of Standards has had the institute's cooperation in the adoption of the American Petroleum Institute hydrometer scale and the development of standard tables for converting measurements of the volume of petroleum at different temperatures to the standard of 60°.

A series of studies of international control of minerals was made by a committee of the Mining and Metallurgical Society of America on foreign and domestic mining policy and a committee of the American Institute of Mining and Metallurgical Engineers on industrial preparedness. These reports dealt with antimony, chrome, graphite, manganese, mercury, petroleum, platinum, metals, tin, tungsten, and vanadium. In general, they covered the place of these various products in the economic life of the Nation, the nature and extent of the mineral supplies in the United States, and the nature and extent of sources of imports, together with a discussion of restrictive policies of nations controlling such sources, wherever such restrictions play an important part. This report also touched on the relation of domestic tariffs to certain of these minerals.

CHAPTER XVIII

METALS AND MACHINERY

The affiliations in trade associations and professional bodies connected with the iron and steel, hardware, and machinery manufacturing industries are based partly on similarities in technical and operating problems and partly on similarities in products. At the one end are such bodies as the American Foundrymen's Association, which draws representatives from concerns devoted to making the most diverse types of castings, including concerns in which the foundry contributes only a small part toward the completion of the finished product. At the other end are such specialized bodies as the Washing Machine Manufacturers' Association, which uses a variety of metal products and many machine and metal-working processes.

In some cases the association represents a certain stage in the production of a certain commodity, such as the Association of Sheet and Tin Plate Manufacturers. Technical bodies such as the American Institute of Mining and Metallurgical Engineers and the American Society of Mechanical Engineers draw their membership very largely from among the industries considered in this chapter, and their work must be borne in mind in considering the technical activities of the various trade associations.

The American Society of Mechanical Engineers is of broader scope than any trade association in the field, and it performs various functions for this group of industries as a whole, including the publication of a condensed catalogue of mechanical equipment. It has issued several thousand pamphlets relating to various mechanical and engineering problems more or less common to industrial plants of different types.

IRON AND STEEL

The American Iron and Steel Institute is the principal organization of the iron and steel producers of the United States, its membership including officials of most of the leading concerns in the country. It holds semiannual meetings devoted mainly to papers on technical and operating problems and the discussion of general business trends and conditions affecting the industry. The proceedings make available to the technical and operating personnel of iron and steel works

all over the country descriptions of the latest processes and labor-saving devices.

The institute issues a monthly report on steel-ingot production and quarterly reports on steel track-work. The institute also publishes annual statistical reports relating to pig iron, the materials consumed by blast furnaces, different types of steel ingots and castings, rolled iron and steel products, tin plates, galvanized sheets, pipes and tubes, nails, rail joints, and other items. In 1925 and 1926 it made a special survey of productive capacity both theoretical and practical, the former referring to what might be considered a maximum for some one month but which could not be continued throughout the year because of accidents, interruptions for repairs, holidays, and various other causes. The practical capacity is about 11 per cent lower than the theoretical.

A directory of iron and steel works of the United States and Canada is published every few years by the American Iron and Steel Institute. It presents a classified list of all companies engaged in the manufacture of pig iron, steel ingots, steel castings, hot rolled iron and steel products, charcoal blooms, and tin plates and terne plates.

Some idea of the increase in efficiency in the steel industry is afforded by the following figures for the productivity of labor in blast furnaces, in steelworks and rolling mills, from 1899 to 1925, based on 1909 as 100:

Year	Production	Man-hours	Productivity	Year	Production	Man-hours	Productivity
1899	46	76	60	1919	141	141	100
1904	59	85	69	1920	171	149	115
1909	100	100	100	1921	80	85	94
1914	97	97	100	1922	142	105	136
1915	132	109	120	1923	183	134	139
1916	175	140	124	1924	153	111	137
1917	182	167	109	1925	182	114	159
1918	180	176	103				

Source: Bureau of Labor Statistics, U. S. Department of Labor.

These figures show that the output of iron and steel products per man-hour increased more than two and one-half times within the 27-year period. The figures for blast furnaces showed a greater increase in productivity than those for steelworks and rolling mills. There have also been economies in the amount of coal and coke consumed, and technical improvements in the process of steel making which enable a greater proportion of the product to be made to accurate specifications. Practically all finished steel products are manufactured to meet recognized specifications, and this fact determines to a large extent the specifications for pig iron and steel ingots which must be made first. The specifications have been determined

very largely by the American Society for Testing Materials, the American Railway Engineering Association, the Society of Automotive Engineers, and other bodies which are trade associations or which work with such associations.

The National Association of Sheet and Tin Plate Manufacturers comprises about 30 manufacturers, most of which are represented in the American Iron and Steel Institute. The association has devised a system of monthly efficiency reports showing units of material required in certain processes. These reports may show, for example, that one mill uses 100 pounds of coal for a certain process while another uses only 80 pounds. Such a comparison has certain advantages, compared with actual costs, for the price paid for coal at two different plants may vary considerably. Complete statistical reports are prepared and disseminated monthly relating to volume of sales, rate of operation, production, shipments, unfilled tonnages, stocks on hand, and other items. A credit bureau answers inquiries from members regarding buyers. When a member makes an inquiry the other members are asked for past experience; the replies are compiled by the association and furnished only to the member originally requesting the information. A standard form of contract has been drawn up and recommended for use by the members. A committee of traffic managers of member companies works in conjunction with various loading rules committees and the American Railway Association in such matters as the regulations regarding bracing and crating of shipments made in box cars.

The sheet steel trade-extension committee, fostered by the association, has already been mentioned in the chapter on construction. (See p. 157.)

The association reports that through an educational campaign it has practically eliminated the practice of guaranty against price decline and is working toward complete uniformity in this regard.

A simplified practice recommendation was made involving reductions in gauges and sizes of galvanized flat sheets, one-pass cold-rolled box annealed sheets, and blue annealed sheets. All gauges of corrugated roofing and siding lighter than 28 were eliminated and some odd gauges heavier than 28 were eliminated. The recommendations have been adopted by the National Association of Sheet and Tin Plate Manufacturers and a number of producers outside the association, by the National Association of Sheet Metal Contractors and more than 30 of its State and local affiliated membership, by the American Electric Railway Association, the American Hardware Manufacturers' Association, the National Retail Hardware Association, the Automobile Body Builders' Association, the National Association of Purchasing Agents, and a number of other bodies

and Government departments, as well as by many individual distributers and consumers. (See Chapter VII.)

The American Foundrymen's Association includes about 30 per cent of the firms engaged in the production of castings in the United States. It aims to promote the arts and sciences practiced or applied by foundry operators and others concerned in the production of castings. It maintains a committee on foundry cost accounting whose function is to educate foundrymen in the importance of installing reliable cost accounting methods.

The association has cooperated in a number of simplification projects, and its standing and appointive committees for the year 1926 were as follows: Convention and exhibits, foundry costs, international relations, training of apprentices, program and papers, gray iron castings, steel castings, malleable castings, nonferrous castings, heat treatment of ferrous castings, metallography, foundry refractories, corrosion of metals, coal and coke, ferrous metals, advisory committee to the Bureau of Standards, representatives on several committees of the American Society for Testing Materials, American Engineering Standards Committee and other bodies, and a joint committee on plant equipment standardization. With the National Research Council it sponsors a joint committee on molding-sand research, with subgroups on conservation and reclamation, geological surveys, tests, grading foundry sands, and molding-sand substitutes.

The National Foundrymen's Association, which estimates that its membership includes 25 per cent of the total number of concerns engaged in iron, steel, brass, and aluminum foundry work, concentrates on employee relations. With the National Metal Trades Association, it publishes The Open Shop Review. This periodical is mailed directly to the homes of employees, and professedly aims to give them labor and industrial news, presentations of the advantages of trade education, discussions of economic problems, articles on efficiency, production, methods, industry, thrift, good citizenship, and "everything that makes for better workmen." A weekly review of current political and economic problems is also sent out to members. The association promotes systematic courses of apprenticeship in charge of a director of vocational education, whose services are available to members upon request. A safety and sanitation bureau has made studies of methods and devices for diminishing foundry hazards, and its members have shown a gradual reduction in time and money lost through accidents. The association maintains a stock of safety devices, which are sold to members at cost, such as safety goggles, foundry leggings, first-aid kits, and safety signs.

A foundry service bureau in charge of an experienced practical foundryman investigates appliances designed to improve foundry

practice and reports to the members of the National Foundrymen's Association its discussions and findings. An employment bureau is maintained for superintendents, foremen, and competent foundry mechanics.

IRON AND STEEL PRODUCTS

BOILERS AND RADIATORS

The National Boiler and Radiator Manufacturer's Association represents concerns producing 80 per cent of the country's output of cast-iron boilers and radiators. It compiles monthly information on shipments, orders received, production, and stocks on hand of boilers and radiators. It is a contributor to various engineering societies engaged in research work. It has also urged State legislation to allow low-pressure cast-iron heating boilers to be exempt from State inspection.

STEEL BARRELS

The Steel Barrel Manufacturers' Institute represents about 65 per cent of the total number of concerns engaged and 75 per cent of the total production of steel barrels and drums. It has a code of ethics and a standard method of cost accounting prepared by a firm of cost accountants and involving an extensive survey of the methods in use by the various plants. Reports of orders received are compiled and issued weekly. Monthly production and shipments of members are also reported. These are subdivided to show the gauge of steel and size of all shipments and unfilled orders and the distribution of shipments by States and for export. A credit-information bureau on prospective purchasers is maintained.

Standard specifications for steel barrels have been worked out in cooperation with the bureau of explosives of the Interstate Commerce Commission. Regulations and requirements for steel barrels to transport articles which are not classed as explosives but which might cause considerable damage if the containers leaked, have been worked out with the Railroad Consolidated Classification Committee. The institute has also compiled for the use of manufacturers and shippers a booklet containing all the regulations and specifications required for the transportation of certain articles in steel barrels.

A simplified-practice recommendation was worked out in cooperation with bodies representing the users of steel barrels, resulting in the elimination of 42 sizes of barrels and drums out of 66, or 63 per cent of the existing line. Adherence to the recommendations during the first year's operations was reported as 78.8 per cent.

STEEL FURNITURE

The National Association of Steel Furniture Manufacturers, including the producers of about 60 per cent of the steel furniture stock

goods sold each year, is concerned with manufacturing, wholesaling, and retailing, a single producer sometimes practicing both methods of distribution. A standard of business practices has been adopted, and a standard cost system has been developed. Monthly statistics of new and unfilled orders, shipments, and employment are reported and a committee is at work simplifying styles.

HARDWARE

The American Hardware Manufacturers' Association has a membership of about 500. Much of its work is related to simplification, and a program has been adopted in cooperation with Government departments, the American Institute of Architects, the United States Chamber of Commerce, the American Engineering Standards Committee, the Southern Hardware Jobbers' Association, the National Retail Hardware Association, and the Hollow Metal Door Society in which 21 to 38 per cent of various items of builders' hardware were eliminated from the catalogues of four large manufacturers.

The American Shovel Institute, cooperating with manufacturers and users in carrying through a simplified-practice program, reduced the number of types and sizes from 214 to 121, and the number of grades from 4 to 3. The possible varieties were reduced from 5,136 to 2,178, or 57½ per cent.

MACHINERY

The National Machine Tool Builders' Association represents about 120 manufacturers. The fluctuations in demand for railway cars and engines, ships, automobiles, and electrical machinery, which have been discussed in preceding chapters, are frequently accentuated in the case of the demand of the manufacturers of these products on the machine-tool builders for the machinery which they use. Accordingly one of the major activities of the National Machine Tool Builders' Association has been to make a careful study of the problem of stabilization. It compiles monthly statistics of new orders. It has also cooperated in a number of simplification projects and with a number of trade associations and engineering bodies for the development of standards in industries using machine tools.

The Machinery Builders' Society, with 30 members, has developed a standard accounting and cost system, which was worked out by the society's council of accountants composed of the principal accounting officers of the company members. It has also developed a standard contract form, standard specifications for propellers, a hydraulic testing code, obsolescence rules for patterns, jigs, and fixtures, and standard colors for painting castings.

The Grinding Wheel Manufacturers' Association, representing a group analogous to the machine-tool industry in that its products

are used very largely in conjunction with machine tools, includes about half the total number of concerns engaged in the industry, with 85 to 90 per cent of the output. It undertook a simplification program, in conjunction with other groups and the Department of Commerce, reducing from 715,200 to 255,800 the number of varieties of grinding wheels, an elimination of 64 per cent.

The Foundry Equipment Manufacturers' Association, with 23 members, producing about 60 per cent of the total volume of the commodity, devotes itself to the promotion of higher ethical standards, collection of statistics, and credit and collection service.

The Locomotive Crane Manufacturers' Association compiles reports from its members on orders and inquiries for locomotive cranes.

The Association of Manufacturers of Woodworking Machinery, with 31 members, producing about 60 per cent of the total volume of the commodity, has a code of ethics, reports credit information, and is starting a program of associated advertising.

The Association of Chemical Equipment Manufacturers is concerned mainly with ethical standards, Government relations, and trade promotion, through the staging of national expositions and other means. The Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce has an arrangement with the Association of Chemical Equipment Manufacturers by which a committee endeavors to furnish necessary information in regard to producing a given chemical product. For example, an inquiry came from the Philippines for a plant to produce tiki-tiki extract. With the aid of the committee the division was able to furnish promptly a description of the process and specifications for the necessary equipment, with price quotations for it.

The Refrigerating Machinery Association represents companies manufacturing commercial types of refrigerating apparatus. It has committees on business ethics, standardization, simplification and the elimination of waste, cost accounting, ordinances and statutes, legal matters, freight and transportation, manufactures, heat transmission, publicity and statistics, and foreign commerce. A special committee cooperates with the boiler code committee of the American Society of Mechanical Engineers in the preparation of a code relating to unfired pressure vessels. Another is charged with conferring on standardized specifications for refrigerating equipment with the structural service committee of the American Institute of Architects. The association cooperates with the American Engineering Standards Committee on the standardization of ammonia flanges and fittings, and has delegates on the joint committee on corrosion of materials used in refrigerating and ice-making equipment and on the joint

committee for considering standardized specifications for synchronized motors for use in connection with air compressors and refrigerating machines.

The National Association of Practical Refrigerating Engineers affords a means of professional contact and education for chief engineers and operating engineers of ice-making and refrigerating plants.

The American Association of Ice and Refrigeration is composed of bodies representing manufacturers, wholesalers, retailers, land and water transportation interests, warehousemen, and other industries to which refrigeration is applied. Through its conventions and committees it correlates the activities of the associations, organizations, and individuals affiliated with it, promotes investigations, experiments, and educational research, engages in educational and trade promotion work, and allocates work among organization members. It also cooperates with international organizations concerned with ice and refrigeration.

The American Washing Machine Manufacturers' Association includes about 80 per cent of the total number of concerns engaged, with 95 per cent of the product. It compiles monthly data on washing machine shipments and has developed a standard cost accounting system for members.

The Vacuum Cleaner Manufacturers' Association is similarly representative of its group. Its activity is limited to discussions of vital problems and to maintaining a close personal acquaintance between the executives of the companies. It also compiles quarterly reports on shipments of vacuum cleaners.

METAL UTILIZATION

The National Committee on Metals Utilization was organized in May, 1926, for the purpose of carrying the principles of simplified practice more deeply into the metal-using field, unifying specifications, discontinuing certain trade practices, and acting as a clearing house in bringing together manufacturers, distributers, and users in the various industries. The ultimate aim of the committee is to awaken a nation-wide interest in the need for eliminating industrial waste and to stimulate mass action in applying corrective measures. It is now composed of 22 member groups constituting an impartial body working in close cooperation with official and private agencies, and representing all branches of industry and trade interested in better manufacturing, distributing, and metal-using practices.

The following organizations are officially represented on the committee: The American Electric Railway Association; American Engineering Council; American Engineering Standards Committee;

American Federation of Labor; American Foundrymen's Association; American Institute of Electrical Engineers; American Iron and Steel Institute; American Railway Association; American Society for Testing Materials; American Society of Mechanical Engineers; American Zinc Institute (Inc.); Chamber of Commerce of the United States; division of simplified practice, United States Department of Commerce; Hollow Metal Door and Trim Manufacturers Association; National Association of Farm Equipment Manufacturers; National Association of Manufacturers of the United States; National Association of Purchasing Agents; National Automobile Chamber of Commerce; National Founders' Association; National Machine Tool Builders' Association; National Metal Trades Association; and the National Retail Hardware Association.

The committee assisted in the completion of the following recommendations issued by the division of simplified practice: Grinding wheels, sidewalk lights, die head chasers, steel reinforcing spirals, carbon brushes and brush shunts, and wrought iron and wrought steel pipe, valves, and fittings. It is assisting in 20 additional simplification projects which are destined for final consideration of all interests, and has accepted 14 definite requests from industry regarding surveys of overdiversification. In the field of simplification the committee cooperated with the division of simplified practice in the issuance of the classification of iron and steel scrap. A committee appointed by the industry is at present actively engaged in a survey of current practice in specifying grades of steel for reinforced concrete. The committee is cooperating with the foundry industry to determine whether or not weights of castings should be indicated on blue prints and inquiry forms sent to foundries for estimate. Hall-marking of sterling silverware is also under consideration by the committee. The National Committee on Metals Utilization is sponsor or joint sponsor for two standardization projects or sectional committees functioning under the rules of procedure of the American Engineering Standards Committee, covering spiral steel rods for concrete reinforcement and dimensions of wrought iron and wrought steel pipe.

CHAPTER XIX

MISCELLANEOUS MANUFACTURING INDUSTRIES

PAPER

The American Paper and Pulp Association is composed of manufacturers of pulp and paper, and of the following 14 affiliated associations:

Service associations.—Cost Association of the Paper Industry; Technical Association of the Pulp and Paper Industry; Salesmen's Association of the Paper Industry; American Pulp and Paper Mill Superintendents' Association.

Organization members.—American Waxed Paper Association; Binders Board Manufacturers' Association; Cardboard Manufacturers' Association; Cover Paper Manufacturers' Association; Glazed and Fancy Paper Manufacturers' Association; Grocery Bag Manufacturers' Service Bureau; National Gummed Tape Manufacturers' Association; Tissue Paper Manufacturers' Association; United States Pulp Producers' Association; Wrapping Paper Service Bureau; Writing Paper Manufacturers' Association.

Individual company members pay annual dues ranging from $100 to $1,500, while the affiliated associations membership fee is $100 or $200.

In cooperation with the Technical Association, the American Paper and Pulp Association has laid plans for a survey of the possible saving through the prevention of waste in the manufacture of pulp and paper by the prevention of loss in effluent, and consequent reduction of stream pollution. Through a joint committee working with representatives of the Association of American Wood Pulp Importers and the Technical Association of the Paper Industry, the American Paper and Pulp Association has succeeded in codifying rules and regulations for the weighing, sampling, and testing of wood pulp, and a list of experienced pulp-testing chemists has been approved by the joint committee. The rules have been submitted to the European pulp and paper associations for approval.

The association has developed a "For sale" and "Wanted" service for several of its smaller affiliated associations for the disposal of used machinery and equipment. A field survey and report on the

pulpwood situation in the Lake States has been made by the woodlands section through its forester.

Special committees of the association include one on simplification and standardization, and advisory committees from the paper industry for the Departments of Commerce and Agriculture. The association maintains a statistical department presenting monthly statistics on production, shipments, and stocks of various classes of paper.

The Writing Paper Manufacturers' Association carries on work in trade promotion, compilation of statistics, research, credit and collections, and other activities. The Cost Association of the Paper Industry provides a medium for exchange of cost data between its members who are manufacturers and converters.

The News Print Service Bureau issues monthly reports showing production, consumption, and stocks on hand, calculating the latter in terms of days' consumption. In view of this statistical guide, manufacturers can keep stocks of this product, of which more than 1,500,000 tons a year are sold, down to 40 or 50 days' consumption.

The Paperboard Industries Association is engaged in discovering new and advantageous uses for paper board and needs of consumers which may be met by use of the product. It carries on research for the improvement of the product and has cooperated with the Post Office Department, express companies, railway companies, and shippers, in determining suitable standards for paper-board containers used in transportation. In cooperation with the division of simplified practice of the Department of Commerce this association participated in a simplification program, which reduced the number of box-board thicknesses from 244 to 60. The association also has a statistical service and a uniform method of cost accounting, and aids its members in the matter of credit and collections.

The American Envelope Manufacturers' Association has a cost engineer who assists members in setting up uniform accounting systems. It has a statistical service, carries on research, and formulates standards for purchases. It is working on the standardization of sizes and nomenclature.

PUBLISHING INDUSTRIES

In the newspaper field some of the great press services are conducted on a cooperative basis and may be considered analogous to a cooperative buying agency with news collecting service as the commodity bought. Their meetings are similar in many respects to those of trade associations. The American Newspaper Publishers' Association represents newspaper owners and publishers in matters of legislation, public relations, postal rates, and the like.

In the periodical field the Associated Business Papers have formulated standards of practice to which members must conform as a condition of obtaining and retaining membership. For the benefit of members statistics are gathered regarding various phases of the publishing and advertising business. At the request of the Federal Government this organization appointed a committee which planned and supervised the sale of surplus war materials. Its committee on standards has laid down regulations for page and fractional page sizes, in accordance with a program approved by the division of simplified practice of the Department of Commerce. Other standards have been adopted to facilitate the placing and handling of advertising. Joint advertising over the name of the association is carried on, the value of space used in advertising journals and in members' publications amounting to about $100.000 annually. Through its advertising service department the association makes market analyses for individual advertisers and advertising agencies. It has a standing committee on postal legislation; it examines advertising agencies from the standpoints of ability, personnel, and credit, issuing credit reports on them: it prepares educational matter for schools and universities and conducts an employment service for publishers.

The Agricultural Publishers' Association includes many of the leading farm papers of the country. It maintains a research service and makes market analyses for the benefit of advertisers, and seeks to bring about uniformity in trade practices.

The Periodical Publishers' Association represents the advertising departments of many of the large magazines and maintains a research bureau for the use of the patrons of its members.

The National Association of Book Publishers devotes itself very largely to trade promotion. It cooperates with such bodies as the National Education Association and the General Federation of Women's Clubs to promote better utilization of books in educational work. Its committees have also sought to assist retailers in improving their service as outlets for books.

The American Booksellers' Association, composed of retailers, is concerned with methods of bookselling, improved public relations, and postal legislation.

The policies of the Audit Bureau of Circulations are controlled by a membership comprising publishers of periodicals and newspapers. For the use of advertisers this organization obtains from periodicals detailed statistics as to circulation. For daily newspapers, for example, it shows circulation for the total city, for the local suburban area, and for territory outside, in addition to bulk sale. The circulation of periodicals is given by States and within States by

size of community. These data provide advertisers with basic facts on which to rely in the buying of space.

The North American Directory Publishers' Association is working on a plan of centralized control of 425 directory libraries throughout the country where directories of all cities may be consulted. At the 1926 convention $50,000 was appropriated for an educational publicity campaign in magazines and newspapers to inform the public as to what may be found in directories and where directories are located.

PRINTING

The United Typothetæ of America (International Association of Master Printers), representing 2,600 firms, approximately one-fourth of the commercial printing industry of the United States and Canada, has carried on a program to improve the conduct of the industry and to enable it to render better service to the public. It sponsors and has been developing a system of standard cost accounting for printers formulated at an International Cost Accounting Congress in Chicago in 1909. More than 1,200 concerns are reported as operating the system in its complete form at the present time, and probably an additional thousand are operating part of the system. Thirty-four local organizations have cost accounting bureaus supervised by trained cost accountants. The national organization maintains a cost bureau for the supervision of the local bureaus and to collect and publish cost data in composite form. The personnel of 35 employees at the Chicago headquarters includes a research staff to collect statistics and other data of special interest in the fields of industry, economics, finance, production, technology, marketing, and education. Its credit and collection service includes 39 local bureaus and an international bureau.

The association is represented on the American Paper Conference Board, the Graphic Arts Conference, exposition and cost conference boards, and holds a sustaining membership in the American Institute of Graphic Arts. It is affiliated with the Board of Control of Community Advertising, and sponsors the graphic arts department of the Associated Advertising Clubs of the World. The research department compiles monthly a table of wage scales paid to employees throughout the country. It maintains a standing committee on standardization which has worked with the Department of Commerce, other governmental agencies, and associations of paper merchants and manufacturers, toward simplified standards for paper. It provides for its members a supply of proper form of riders for insurance policies and gives free consultation on insurance matters. A major activity of the organization is its campaign for training

personnel. The courses are open to all types of employees ranging from apprentices to managers. The curriculums include business management, courses in accounting, cost finding, estimating, advertising, and salesmanship. Nearly 5,000 young men and young women employed in the business offices of the membership have taken these courses, much to the benefit of themselves, their employers, the industry, and the buyers of printing. Other courses of training for apprentices and journeymen have been built up and are operated in public and private vocational schools as well as in a school maintained by the United Typothetæ of America itself at Indianapolis, Ind. This educational work is not restricted to the membership of the association, but is open to the printing industry throughout America.

The total income of this organization for the fiscal year ended September 30, 1926, was $277,000, of which $188,000 was derived from dues. The bulletin brought in a return of $31,000 and involved expenditures of only $29,000. The department of education was charged with expenditures of $81,000, against which were credited receipts of $51,000, making a net expenditure of approximately $30,000 for this department.

The department of research involved expenditures of $41,000, of which $11,600 was for administrative purposes, $13,600 (partially offset by $2,400 receipts) for accounting, $6,000 for production records, and $5,000 each for industrial research and technical engineering. Each local body is obligated to forward dues for its members, based on labor pay rolls, except that certain maxima are fixed.

RUBBER

The Rubber Association of America is an incorporated association of manufacturers of rubber products and reclaimed rubber, who constitute the firm members. It has as affiliated members importers of and dealers in crude rubber, and manufacturers of supplies and equipment used in the rubber industry, many of whom are firm members of associations in their own industries. Prior to 1926 rubber importers and dealers were admissible as firm members to the rubber association.

The association had in 1925 a membership of 226 firm members and 78 affiliated members. Its staff includes a general manager and secretary, assistant general manager, managers for the traffic and accounting departments, and two assistant secretaries. It has 16 standing committees and 12 divisions, a number of which have subcommittees. During 1925 there were about 75 meetings of association members, with an aggregate attendance of approximately 1,000.

The manufacturers of rubber goods deal directly with retailers in the selling of tires, with large industrial users of various rubber products, and with wholesalers in the marketing of certain sundries. They therefore come into somewhat close contact with the users in the case of a large majority of products, and the activities of the Rubber Association of America accordingly cover trade relations in distribution, trade promotion, and programs for the better adaptation of products to consumers' needs, in addition to compilation of statistics, simplification, and other lines of activity.

The Rubber Association of America played an integral part in the successful measures taken to combat the dangers within the United States resulting from the operation of the so-called Stevenson scheme of restricting the exports of crude rubber from certain British possessions in the Far East.

From studies of the association's statistics covering crude rubber and rubber products, and from a survey of crude-rubber consumption made by the Department of Commerce in August, 1925, the department, with the concurrence of the association, recommended that consumption be curtailed for the time being, and that users of rubber tires make every effort to obtain full utility from such equipment by proper repair. Corresponding with the decrease in retail sales of tires, the sale of repair kits and patching outfits showed a marked increase.

In the autumn of 1925 when tire dealers were apparently laying in stocks of tires in anticipation of a rise in prices, the tire executive committee of the association recommended to the tire manufacturers' division that sales to dealers on "spring-dating" contracts which were in vogue during the winter months, be deferred during the 1925–26 season, so that dealer credit and stock conditions might continue healthy.

Another move in which the Department of Commerce and the association cooperated was that of an increased use of reclaimed rubber wherever possible without impairing the quality of finished products. The amount of rubber reclaimed and so utilized showed a remarkable advance. By the spring of 1926 the combined result of all these conservation measures was the reduction of the price of rubber from over $1 a pound in December, 1925, to around 40 cents in the late spring of 1926.

The tire manufacturers' division of the Rubber Association of America has worked with the Society of Automotive Engineers in the simplification of tire and rim sizes. When balloon tires were introduced into the trade in 1923 it was recognized that the number of sizes should be limited and that the sizes determined upon should be scientifically adapted to the needs of motor cars. As a result of

research programs carried on by tire manufacturers in conjunction with the automobile industry, it was determined that only three rim sizes, namely, 20, 21, and 22 inches, were required, and it was recommended that the number of sizes of tires for each rim size be limited.

The mechanical goods division of the association has been concerned with many simplification projects, such as the adoption of the ⅝-inch size of garden hose as standard. In one year approximately $6,000 was spent for trade-paper advertising and direct circularization of hardware jobbers and dealers on the subject. The National Hardware Association and the National Retail Hardware Association and its affiliated State organizations have given their assistance to the movement.

The Rubber Association of America also devotes efforts to standardizing the specifications for rubber products and for the materials used in manufacturing them. It has established, for example, recommended rules for inspection of rubberized automobile fabrics, together with recommended standard contract provisions and a recommended standard guaranty on materials for automobile tops. Its various divisions keep in close contact with the Federal Specifications Board, the Underwriters' Laboratories, the American Railway Association, and the American Society for Testing Materials. In cooperation with a number of other bodies it has worked out a standard specification for fire hose.

The monthly statistical services of the Rubber Association include production, shipments, and stocks of tires and tubes (automobile, motor cycle, and bicycle), adjustments on defective tires, consumption of cotton fabrics and crude rubber in tire manufacturing; imports, stocks, and consumption of crude rubber; and production, shipments, and stocks of rubber heels, rubberized fabrics, and mechanical goods. Quarterly reports are issued on scrap and reclaimed rubber and on consumption and stocks of crude rubber.

The Rubber Association financed a study of the accounting and mechanical practice of retail tire dealers, which was completed in 1924 by the Bureau of Business Research of Harvard University. The results of this survey, made available to retailers through the National Tire Dealers' Association and through individual contact, have helped the various committees of the tire manufacturers' division in working out recommendations for improved trade relations with retailers.

In order to secure uniform practice with regard to warranties and adjustments, the tire division prepared a standard form of tire warranty, whose provisions were explained to dealers and the public through extensive national advertising and circularization. In order that the warranty should be uniformly applied, an extensive treatise covering practically all known types of cases was prepared, and the

service managers' committee issued an adjusters' manual and a series of educational letters for tire salesmen. In addition, a serial number record was perfected by which dealers would be aided in keeping track of the essential data in regard to each tire sold.

Other divisions have also worked out standard warranties for such items as rubber soles and heels, mechanical rubber goods, and rubber flooring. The general practice in these warranties is to guarantee against mechanical defects, with provision for adjustment on a basis equitable to users, dealers, and manufacturers.

The association provides headquarters for registering trade names applied to rubber goods, so that a manufacturer considering adopting a designation for a given product can easily ascertain, without making an expensive individual search, whether he is infringing on a similar name used by another manufacturer.

The association has taken out trade-marks in foreign countries for tire-trade terms in general use here, such as "cord," "cushion," and "balloon," in order to prevent anyone from interfering with their free use by American manufacturers. It has persuaded manufacturers to modify their individual foreign registrations to avoid restrictions on the further development of foreign markets for American tires.

The work of the association covers such varied items as the preparation of a booklet on the construction of radio sets in which the uses of hard rubber products are carefully explained, a tire repair manual, and a number of booklets on the care of pneumatic tires and tires for trucks and busses. Considerable attention has been devoted to the education of motorists and managers of automobile fleets to the importance of correct inflation as a means of prolonging the life of tires and of getting the best service from them. In order to promote a wider understanding of the use of rubber tiling, a booklet has been issued on the methods of laying, and the association successfully advocated a change in interpretation of the New York State tenement act, to permit the use of rubber tiling where a previous interpretation of the law was held to prohibit its use. The rubber flooring manufacturers' division has also cooperated with the National Safe Walkway Committee, which has been working on model regulations for use by builders and for adoption by local governmental authorities.

TANNING

The Tanners' Council of America was organized in 1917 to assist the Government in controlling the foreign commerce in hides, skins, and leather, and in securing adequate supplies of leather for the Army. In order to carry on this work, the council established a

complete statistical service showing stocks, production, and movement of these commodities. Soon after the war the compilation of these figures passed by law to the Bureau of the Census.

The Tanners' Council maintains a trade survey bureau, whose policies are directed by a committee of five tanners. This bureau shows, through graphs, the raw stock supplies, stocks and consumption of leather, livestock slaughter, and hide production. At the outset the council sent out a monthly statement of imports and exports of hides, skins, and leather, but the issuance of this has been taken over by the hide and leather division of the Bureau of Foreign and Domestic Commerce.

The council has cooperated with the Department of Commerce in such matters as improving import and export tables; establishment of a weekly bulletin service; the compilation of an exporters' manual; the preparation of technical questionnaires (relating to the markets for hides, skins, and leather) sent to the Government's representatives abroad, and the organization of export clubs in the principal leather centers as advisory aids to the Department of Commerce.

In 1922 the council compiled an international cable code covering hides, skins, and leather now in use throughout the world.

Since 1918 the Tanners' Council has maintained a research laboratory to study the industrial problems of the tanning industry. In 1924 the sum of $120,000 was expended in the construction and equipment of a modern laboratory at the University of Cincinnati. The earlier studies of the laboratory related to the washing and brining of hides with a view to conserving the hide substance. The methods of treatment proposed by the council, which were given practical tests in the principal hide-producing centers, have resulted in a great improvement in the quality of raw stock produced. The policy guiding the work is developed by a special committee of tanners. This laboratory also has the cooperation and support of the Leather Chemists' Association, composed of technical men connected with the staffs of the several hundred tanneries in the country.

The commerce committee has cooperated with the Department of Agriculture in the improvement of its statistics covering country hides. Two field men have been appointed by the Department of Agriculture to make a study of the question of standardizing the take-off and curing of hides and skins.

During 1920 to 1922 the Tanners' Council employed an accountant to develop uniform cost accounting systems for the principal branches of the leather industry. These systems, developed after numerous meetings with the accountants in the several groups, were put into book form and distributed to the various firms in the industry. After the distribution of these books was made, a leather

accountants' association was formed under the direction of the Tanners' Council, and for several years its members have been getting together and working out problems affecting the proper distribution of their costs.

The traffic committee, composed of traffic managers of the leading tanning firms, has recovered several hundred thousand dollars in freight adjustments. Through its efforts leather has been properly described in the several railroad classifications. During 1925 four briefs have been presented to the Interstate Commerce Commission. In connection with the eastern class-rate investigation, the committee employed a traffic expert to specialize in Interstate Commerce Commission matters.

Unfair practices on the part of the manufacturers of leather substitutes received the attention of the association through a committee representing tanners and leather-goods manufacturers. Under the direction of this committee a glossary of leather terms was prepared for use in the industry, down to the retail trade, and cases wherein the name "leather" was given to a composition product were called to the attention of the proper Federal authorities.

The council maintains a system for the exchange of information on unpaid accounts.

Major groups in the industry, notably the National Boot and Shoe Manufacturers Association and the New England Shoe and Leather Association, felt that the need for statistical information such as had been collected as a war measure was so great that they urged upon Congress the passage of an act, which became a law in 1920, providing for the monthly collection by the Bureau of the Census of information from tanners, dealers, and manufacturers using leather as a material, on stocks of hides and skins, and stocks and production of leather. The statistics, which cover approximately 51 different items for hides and 104 different kinds of leather, give to all within the industry information concerning the supply and the rate of consumption of all these items. It is believed that with these data available such unwarranted inflation of prices as occurred in 1919–20 will be unlikely to occur.

The National Tanners' Council has taken up many of the technical problems of tanning and the quality of raw materials. Its research laboratory has made extensive studies of the different methods used in the treatment, storage, and handling of raw hides before they come to the tanner, and has endeavored to educate the producers of hides as to the most improved methods. Its research laboratory has been able to develop processes by which, with no additional cost, a better quality of leather may be obtained from each hide or skin tanned. Reduction in tanning costs is felt to be most desirable,

in order that leather may hold its position in respect to materials which compete both with its major products and with its by-products.

SHOES

The National Boot and Shoe Manufacturers' Association interchanges ledger credit information among its members. It serves as a mediator between buyer and seller in adjusting disputes. It publishes bulletins to keep its membership informed as to trade conditions and works in conjunction with the wholesalers' and retailers' associations on problems such as the decrease in consumption of men's shoes, the increasing proportion of low shoes consumed, and the increase in shapes, styles, and finishes in women's shoes. By its style forecasts it is helping to concentrate production of women's shoes along fewer lines, which means less expense for lasts and for the stocking of unusual or specialty material for uppers. In order to help bring about a standard nomenclature as to colors, it has cooperated with the National Textile Color Card Association in the adoption of standards.

The New England Shoe and Leather Association, organized in 1869, embraces not only manufacturers and wholesalers of boots and shoes, but dealers in hides and skins, tanners, manufacturers of lasts, and makers of shoe and tanning machinery, polishes, belting, chemicals, shoe findings and supplies, rubber footwear, rubber soles and belts, and thread and tanning materials. Every important branch of the allied shoe and leather trades is represented. Through appropriate committees and bureaus the association keeps informed on tariff and general legislation, transportation problems, foreign and domestic trade, industrial education, patents, and insurance.

The National Shoe Retailers' Association was the first organization of its kind to have a thorough study of retailing practice undertaken by the Harvard Bureau of Business Research, resulting in a uniform system of cost accounting. Through reports collected each year by the bureau, any retailer is enabled to establish for a purely nominal sum a system of cost and record keeping adapted to his own volume of business. This undertaking enables a retailer to ascertain what elements in his cost of doing business are high or low compared with those of establishments doing a similar volume of business in other localities. It also informs him of trends and general practices in the trade with regard to the details of handling customers, instructions to salesmen, and collection of individual accounts. The retailers' association devotes a considerable part of its energies to improving trade relations with jobbers and wholesalers, and it conducts a mutual insurance organization.

CHEMICALS

The term "chemical and related industries" includes not only the production of commodities generally designated as chemical and dyestuffs, but drugs, pharmaceutical and toilet preparations, explosives, fertilizers, paints and varnish, soap, and turpentine and rosin.

The Synthetic Organic Chemical Manufacturers' Association of the United States has aided the chemical division of the Department of Commerce, in cooperation with the Tariff Commission, in working out a unique compilation of import statistics. Within two or three days after the close of each month a bulletin is prepared which shows, in the most itemized form, the imports of practically every organic chemical during that month. Thus makers and distributers of chemical products are almost immediately informed when a supply of chemicals which they may need is in the country.

The naval-stores industry, concerned with turpentine and rosin, has found itself in competition with other products, and the Pine Institute of America has been formed to carry on a trade-promotion campaign to keep up the position of the original product. Similarly, the Chlorine Institute has devoted its energies largely to developing new uses for chlorine.

To stabilize the fertilizer industry, which has been handicapped in the past by severe fluctuations, the National Fertilizer Association, recently organized, has undertaken the collection and publication of statistics on fertilizers. The association is engaged in research on soil analysis, in cooperation with the Department of Agriculture and other bodies, to enable its members to adapt their sales policies more scientifically to the needs of their customers. The association is also working with the Department of Agriculture to effect a standardization program covering nomenclature, grades, and strength of various mixtures.

The National Wood Chemical Association maintains a research fellowship and keeps in touch with foreign developments on methanol and acetate of lime.

Many of the chemical industries produce commodities which are dangerous to handle. These industries are represented in the National Safety Council and also cooperate with the Interstate Commerce Commission, with the railroads, and with State and local authorities in the framing of proper rules and regulations governing the shipment, handling, and storage of explosives, dangerous fluids, and tanks holding liquefied gases.

CHAPTER XX

TEXTILES AND CLOTHING

TEXTILES

Until 1926 the more active associations in the textile industries were mainly in the newer or more rapidly expanding branches of the industry, such as knit goods and silk, or in highly specialized branches, with common problems in production and selling. The technical problems of textile manufacture have been left for the most part to overseers' associations and to local bodies or conferences, frequently with an informal type of organization.

The affairs of a number of national associations are complicated by the fact that their members represent varying steps and combinations of steps in the manufacture of finished articles. They usually are not divided into well-defined sections and they lack strong local or State chapters.

COTTON

The Cotton Textile Institute, organized in 1926, has a membership representing between 21,000,000 and 22,000,000 spindles, out of approximately 28,000,000 eligible for membership. It is a cotton-mill organization and functions in the interest of mill members by studying and recommending ways and means of increasing business and by developing efficient operation generally. To this end they cooperate with the distributive branches of the cotton textile industry. At the present time they are enaged in cost accounting work, statistical services, studies of new and extended uses of cotton fabrics, simplification of products, and technical and market research.

The Association of Cotton Textile Merchants, composed of New York firms which sell exclusively the products of cotton textile mills in the United States, is, in reality, national in scope, in that the great bulk of cotton textiles passes through their hands. During the last two years the association has developed a statistical service which shows weekly returns on products ordered and stocked.

The National Association of Cotton Manufacturers, whose membership of about 750 is drawn largely from New England, and the American Cotton Manufacturers' Association, with a large proportion of southern manufacturers in its membership of about 1,000, have been concerned with matters affecting standards for raw cotton

and for finished cotton goods, tariff problems, and trade relations. The membership of each of these bodies includes a certain proportion of converters and wholesale selling agents. They have worked with the Federal Specifications Board in developing specifications for Government purchase of such materials as airplane cloth, various types of sheeting, and other cotton products.

The National Council of American Cotton Manufacturers, which includes both the above bodies and a number of others representing manufacturers of cotton goods, affords a medium for conference between the two main groups on matters of joint interest.

The Cotton Yarn Merchants' Association, with a membership of 55, producing about 20 per cent of the commodity and selling about 70 per cent, maintains a bureau for exchange of credit information and has committees to arbitrate disputes and minimize cancellations of orders.

The Converters' Association, made up of about 85 concerns engaged in bleaching, dyeing, and printing cotton goods and selling them at wholesale, has a credit and collection service and cooperates with the manufacturers' associations in an endeavor to improve trade relations with clothing manufacturers, jobbers, and other wholesale and retail buyers. It also maintains traffic and insurance service bureaus and carries on statistical research.

The Cotton Duck Association in 1924, with the cooperation of the division of simplified practice of the Department of Commerce, sponsored a conference on reducing the number of weights and widths of sailcloth and cotton duck, resulting in a reduction from 460 varieties to 94, or an elimination of 80 per cent. These recommendations have been accepted by the American Society for Testing Materials, the National Association of Cotton Manufacturers, the National Association of Purchasing Agents, the National Tent and Awning Manufacturers' Association, and the National Wholesale Dry Goods Association.

WOOL

The National Association of Wool Manufacturers is one of the oldest trade associations in the country. It has been interested in tariff legislation since it was organized and prepares annual statistical reports. It represents the industry in the establishment of standards for raw wool and for wool products. It also engages in research upon commercial and manufacturing problems.

The American Association of Woolen and Worsted Manufacturers, with 195 members, including a number of selling agencies, deals more especially with problems relating to merchandising, such as the arbitration of trade disputes and trade relations with wholesalers, retailers, and clothing manufacturers.

The Carded Woolen Manufacturers' Association is devoted almost entirely to trade relations problems.

The National Association of Woolen and Worsted Overseers, with a membership of about 1,300, was organized to aid in solving the problems involved in operating mills, but its activity is confined largely to holding meetings for contact between members.

The National Woolens and Trimmings Association, with about 50 members, representing the firms carrying on about half the jobbers' sales of tailors' trimmings and similar articles, acts as a clearing house for credit information and aims to promote the trade and mercantile interests of its members.

SILK

The Silk Association of America represents the manufacturers of silk, importers of silk, dealers and brokers, manufacturers of silk machinery, and manufacturers' agents and commission houses. It has set up grading standards for raw silk and has taken steps to improve the quality of raw silk produced in China. Every transaction by its members relating to silk and silk products is subject to the rules of the association, which maintains arbitration machinery for adjusting differences between buyers and sellers. The association has been particularly active in steps to prevent misbranding. The Silk Association of America took the lead in pointing out the confusion which might arise from use of the term "artificial silk," and the manufacturers of that product determined to use the term "rayon."

The Silk Dyers' Association of America, representing 26 firms doing about 60 per cent of the business of dyeing, printing, and finishing on commission orders from manufacturers, is concerned with ethical standards, Government relations, employee relations, credit and collection service, and traffic and insurance problems.

KNIT GOODS

The Associated Knit Underwear Manufacturers of America, representing mostly plants which buy yarn and produce finished undergarments on a large scale, has carried on research and standardization programs. It has worked out a series of standard measurements for men's, boys', and children's underwear, so that a man buying a size 38, for example, carrying the association's label, knows that it will be the standard size, no matter what company produces it. The association has also adopted a series of standard dimensions for cardboard boxes for finished underwear—work which has involved much study and the standardization of methods of folding. The use of these boxes will permit the use of standard sizes of containers for

the cardboard boxes and will facilitate provision of shelving for such goods by retailers.

Studies made in cooperation with the National Retail Dry Goods Association to expand the market for knit underwear through department stores brought out the fact that department-store officials in charge of window display were found reluctant to feature men's underwear because of the lack of color. Accordingly colored lines were produced, and their display in selected stores was followed by marked increase in sale of knit underwear.

Research at the Bureau of Standards, at the request of the association, included a report on the basic methods of rayon manufacture, means of identifying products made by the different methods, twist, moisture absorption, breaking strength, and methods of checking size or denier. This report led to the preparation of washing instructions for rayon garments and the treatment of yarn with lubrication previous to knitting, in order to prevent excessive needle breakage. Another study of methods of testing yarn and knitted fabrics for tensile strength developed the need for uniform procedure in the making of tests, since individual differences in the manner of testing has accounted for widely varying results.

The National Knitted Outerwear Association represents manufacturers of finished outer garments. It has developed a code of ethical standards and maintains a complaint bureau which adjusts disputes among members and between members and their customers. Machinery is maintained for arbitration in cases where this procedure fails. A standard cost accounting manual has been published by the association. A committee is at work on a program of cooperation with the worsted yarn spinners. Work on standardization of measurement for sizes of sweaters and bathing suits is being carried out under the direction of a research fellow at the Bureau of Standards, in cooperation with retail clothiers and furnishers. A spring and fall color card is issued for outerwear, to standardize shades and their nomenclature. The association maintains a fashion expert to aid manufacturers in keeping up with the styles and to promote adequate treatment of the product in the press. A fashion department is maintained in the association's periodical.

An interassociation council unites the knitted underwear and the knitted outerwear associations in activities of common interest and facilitates interchange of useful ideas and information. As most knit goods are made into final finished form ready for the consumer, the industry is more fully integrated than that of woven cloth manufacture and the manufacturers are much closer to the ultimate consumer.

The council has six regional associations affiliated with it. Its standing committees comprise statistical, technical, and standard-

ization, cost calculation, local associations, cooperation with spinners, finance, color standardization, sales arbitration, trade practices and ethics, publicity, tariff and legislation, fashion, and ways and means.

The National Association of Hosiery and Underwear Manufacturers has maintained a research associate at the Bureau of Standards. As a result of his studies the cardboard boxes used for hosiery have been standardized and a standard method of measuring hosiery worked out.

The National Textile Color Card Association, though not, strictly speaking, a trade association, represents a number of groups in the textile and boot and shoe groups for the purpose of preparing standard color cards and promoting uniform nomenclature.

OTHER TEXTILE PRODUCTS

The American Association of Wool Blanket Manufacturers sponsored the simplification of sizes of bed blankets which resulted in a reduction in sizes from 78 to 12, or 85 per cent. These recommendations were accepted by the American Home Economics Association, the General Federation of Women's Clubs, and national bodies representing hospitals, hotels, cotton manufacturers, wool manufacturers, governmental purchasing agents, retail dry goods, and wholesale dry goods.

The Association of Wilton and Brussels Manufacturers of America, representing about three-fourths of the total volume of the commodity, has to do mainly with labor problems.

The Association of Manufacturers of Window Shades carries on standard cost accounting, a credit service, employee relations, and simplification.

The Cordage Institute, with 10 members, manufacturing about 85 to 90 per cent of the hard-fiber product (excluding binder twine), is concerned with standard cost accounting, statistics, trade, public and Government relations, commercial and industrial research, simplification, market analyses, and traffic and credit service.

The Grass and Fiber Rug Manufacturers' Association is engaged in statistical research in order to present data to Government bodies.

CLOTHING

Although associational activities in the clothing industries are widely diversified, they may be broadly classified under two headings—first, as nationally representative and dealing with problems of the industry exclusive of employee relations, and second, as market or local associations dealing primarily with trade and employee relations, in negotiating agreements with trade-unions on wages and working conditions, and in providing credit and collection service with retailers.

The International Association of Garment Manufacturers, organized in 1907, with its 17 affiliated associations or divisions, is a national organization with members located in 38 States, representing manufacturers of men's and boys' clothing and some types of women's and children's apparel. Through its service bureaus, technical staff, and consulting engineers, cooperative research and advisory service are maintained to aid in developing and promoting standard practice on basic problems of the industry, and, in addition, to assist members with their daily problems of management, financing, manufacturing, selling, and recording. It operates a shopping service to assist members in locating needed materials or supplies, conducts cooperative buying of standardized factory supplies, issues various technical and service bulletins (including an exchange bulletin through which members can dispose of surplus materials or plant equipment), holds an annual textile and machinery exposition, and conducts an annual clothing display and contest at which certificates of merit are awarded to contestants whose entries show practical new ideas and economies in method of manufacture and design.

The Associated Dress Industries of America, representing manufacturers and wholesalers in the women's dress industries, maintain a statistical and commercial research department. The traffic service of the association seeks to improve express transportation and delivery and to aid members in filing and handling claims for lost and pilfered packages. The association maintains a credit and collection service exchanging the ledger experience of members supplying reports on the character of customers. During 1925 the service and credit bureau answered 159,902 credit inquiries. A daily credit sheet issued to members reports lawsuits started by members against retailers, together with routine data. An average of 10 credit sheets is issued every day. The collection bureau handled in 1925 a total of nearly 7,500 items, representing $987,000. The association aided in adjusting more than 5,000 cases involving returned goods. An employment bureau is maintained, and an exchange bureau aids in transactions in piece goods and office equipment between its members. A publicity bureau furnishes material on the association's work to trade papers, magazines, and newspapers throughout the country.

The United Women's Wear League of America, with a membership of 400, comprises the following seven bodies: United Waist League of America, United Skirt League of America, United Underwear League of America, United Petticoat League of America, United Women's Neckwear League of America, United Women's Belt League of America, United Infants', Children's, and Junior Wear League of America. It has objectives similar to those of the Associated Dress Industries of America and devotes especial attention to the elimina-

tion of trade abuses and to the improvement of trade relations. It maintains an arbitration board for the purpose of adjusting differences between the manufacturer and the retailer and the supply house. It also selects colors for various seasons for style merchandise.

The American Cloak and Suit Manufacturers' Association, with 900 members, is concerned primarily with credit and collection service and with trade and employee relations.

The Fur Dressers' and Fur Dyers' Association, with 33 members, compiles statistics of skins dressed and dyed by the members. Customers failing to pay their accounts 30 days from the end of the month of delivery, the standard credit period of the association, are placed upon the unpaid account list and their credit is automatically shut off. In accordance with the constitution, no member may deliver skins to a firm whose name appears on the unpaid account list, except on C. O. D. terms.[10] The association reports that this regulation was approved by the Federal district court after a trial instituted by the Department of Justice. The association maintains contractual relations with the International Furriers' Union of the United States and Canada. It has standard forms of invoices and statements.

The Millinery Association of America compiles monthly data on merchandise returns and sales volume. It sponsors an incorporated body known as the Millinery Association of America Credit Bureau, which interchanges credit information for members and renders a collection service.

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[10] It is to be noted that this association is not engaged in interstate commerce and consequently is not within the range of the antitrust laws. Its practice should not be accepted without question as a sufficient precedent. See page 118; see also *U. S.* v. *Fur Dressers' and Fur Dyers' Association (Inc.), et al.*, 5 Fed. (2nd.) 869 (D. C. S. D., N. Y. 1925).

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CHAPTER XXI

FARM PRODUCTS

The chain of associations represented in the marketing of farm products and the manufacture and distribution of foodstuffs starts with farmers' cooperative selling agencies. It includes commodity exchanges, groups engaged in wholesale trade, manufacturers of food products, and retail outlets. A number of these bodies are not strictly trade associations, and in certain cases their members have their major interests in other fields. A large number of constructive measures during the past few years have been advanced as a result of intergroup efforts. More efficient farm management and operation, improved information available to all groups, improved transportation, standardization of grades and qualities, enlargement and improvement of warehousing and cold-storage facilities, improved financing, better adapted business documentation, simplified trading rules, and promotion of markets serve to indicate some of the directions in which these cooperatives and associations have played a part.

FARMERS' COOPERATIVE ASSOCIATIONS

Farmers' cooperative associations for selling farm products are in many respects like the trade associations of other types of producers. The total sales by these cooperatives in 1925 have been estimated by the Department of Agriculture at $2,265,000,000 distributed among leading groups as follows:

Grain	$750,000,000
Dairy	535,000,000
Livestock	320,000,000
Fruits and vegetables	280,000,000
Cotton	150,000,000
Tobacco	90,000,000
Poultry	40,000,000
Nuts	16,000,000
Wool	10,000,000
Miscellaneous	74,000,000
Total	2,265,000,000

Their buying of supplies in the same year was estimated at $135,000,000.

Although a comprehensive discussion of farmers' cooperative associations is not within the scope of this volume, some of their activities, noteworthy as well as typical, are described in the following pages.

GRAIN

The objective of grain growers' cooperatives, which, with their estimated $750,000,000 sales in a single year, do the largest volume of business of any single group, is orderly marketing and the removal of handicaps to individual sellers. The larger cooperatives are, for the most part, federations of local units which usually own their own local country elevators or contract for local elevator space in public warehouses. The central organizations likewise own or control elevator space at terminal receiving points. Through their control of a large volume of sales they control to a certain extent the amount of grain put on the market at any given time and thereby serve to minimize the severity of temporary swings in the market and the resulting losses incurred by forced cash sales at times of extreme market depression. The cooperatives also attempt to secure for the grower the most equitable treatment in the matter of differentials for the quality of grain.

COTTON

The cotton growers' cooperatives, whose total sales in 1925 amounted to $150,000,000, have aims and methods similar to those of the grain growers.

The Louisiana Farm Bureaus' Cooperative Association had sales amounting to $4,515,000 for the year which ended July 31, 1926, representing more than 49,000 bales of cotton, of which $4,006,000 was distributed to members, the remainder having gone for pool expenditures, interest, insurance, warehousing, reserve, and other items.

The Arizona Pima Cotton Growers marketed more than 16,000 bales for its members in 1925–26, with operating expenses of only $0.77 per bale, compared with $7.90 per bale in 1921–22 when 10,700 bales were handled. The cotton delivered during the 1925–26 season was handled in 45 pools, with the selling price ranging from 10 to 37 cents a pound. This body established during the year the Arizona Agricultural Credit Corporation for the purpose of making loans totaling $250,000 to cotton growers.

PERISHABLE FRUITS AND VEGETABLES

The activities of growers' cooperatives in the fruit and vegetable industry usually center about the assembly and grading of the product and its sale. In some cases a small local cooperative serves principally as a medium for assembling car-lot shipments; in other cases

large central packing plants are maintained where products are carefully graded, processed, and packed; in still others provision is made for supervision of grading and packing on the farm. Many of the largest organizations are simply federations of locals which serve to coordinate selling and to assure uniform application of grading, packing, and standardization rules. In many cases the growers' cooperatives aid in cooperative buying of seeds, shipping crates, fertilizers, and other supplies.

The California Fruit Growers' Exchange during the 12 months ended October 31, 1926, shipped about 73.2 per cent of the total California citrus fruit shipments, amounting to more than 20,000,000 boxes, valued at $70,700,000. The equivalent of 3,452 carloads of lemons was handled through a by-products plant operated by the Lemon Exchange Products Co., a separate corporation. The average deduction for marketing was 8.6 cents, and the further deduction for advertising was 4½ cents a box on oranges and grapefruit and 7 cents a box for lemons. A bulletin[11] of the Department of Agriculture records that "the 1925–26 advertising program included 99,000,000 individual advertisements in national magazines; 486,000,000 advertisements featuring hot lemonade in 275 newspapers; a special newspaper campaign on 'Sunkist Oranges' for the holidays in newspapers in 73 cities; an orange campaign in 220 daily newspapers reaching more than 16,000,000 people; and 150,000,000 advertisements featuring lemons for all the year use." More than 2,600,000 bulletins were distributed to domestic-science teachers and extension workers, and dietetic bulletins for nurses, wall charts for classrooms, colored posters, and educational bulletins for tea rooms were distributed. About 25 per cent of the advertising appropriation was used for personal calls on 48,682 dealers in fresh fruit, installation of 28,796 window displays, arrangement of 4,108 fountain displays, and 218,592 letters mailed to the trade. Six thousand six hundred electric fruit-juice extractors were sold at cost, and it was estimated that the more than 33,600 such extractors in service at soda fountains and lunch counters increased the demand for oranges and lemons by about 4,000 carloads in the year. A research laboratory studied the recovery of greater values from that portion of the citrus crop not suited for packing and shipping. Member associations purchased $8,292,000 worth of supplies from the Fruit Growers' Supply Co., operated in connection with the exchange.

The Mutual Orange Distributors of California comprise 36 groups of citrus-fruit growers which marketed more than 2,700,000 boxes of citrus fruits in the 1926 season. The purchases of this organization's supply department, as reported by the Department of Agriculture,

[11] Agricultural Cooperation, Dec. 6, 1926, p. 484.

totaled $1,178,000, and refunds through this service amounted to 1.42 cents a box.

The Department of Agriculture statistics on car-lot shipments of fruits and vegetables and receipts and market conditions at leading distributing points are used extensively by farmers' cooperatives. It is not only such large groups as the California Citrus Fruit Growers' Association, which can afford to have representatives at 200 cities, but smaller groups as well that take advantage of these data in determining the time to ship and the points to which shipment shall be made. Occasionally a body such as the California Citrus Fruit Growers' Association is able to influence the proportion of lower grade production which shall be routed to by-product manufacturing plants.

As an example of increased shipments made possible through cooperative effort may be mentioned the growth from approximately 20,000 to more than 80,000 carloads of grapes from California during the period from 1918 to 1925. A large percentage of spoilage in the handling of grapes from the 1924 crop at New York caused the Grape Association of California, the railroads, and the commission merchants around New York to measure the potential market more carefully. As a result of a series of conferences, methods were worked out providing for sampling of cars and prompt movement of their contents. The result was that the 17 per cent larger receipts of 1925 were handled with comparatively little spoilage.

LIVESTOCK

Livestock growers' cooperatives furnish a convenient agency for assembling car-lot shipments of animals. Some of the federations maintain selling agencies at terminal receiving yards and give to shippers a refund based on the difference between the commissions paid and the cost of rendering service.

The American National Livestock Association, the largest cattle growers' association, draws its membership mainly from the Western States. It has about 60 association members organized on a State and regional basis. In addition to committees dealing with problems connected with raising livestock and the use of public lands and national forests for grazing purposes, it has committees on livestock, economics, foreign and home markets, and stockyards and exchanges. Its subscriptions and dues from associations and individuals amounted in 1924 to about $16,000. The largest single item of expense, outside of salaries, was for support of The Producer, the association's publication, which has a circulation of 150,000.

The Farmers' Union of Nebraska handled nearly 29,000 carloads of livestock at Omaha, St. Joseph, and Sioux City in 1925. For the first nine months of 1926 total sales were reported as $37,356,140.

More than half of the $334,000 commissions collected were available for the patronage refund to the members of the associations sustaining the sales agencies.

The Central Cooperative Commission Association, which conducts a cooperative sales agency at the South St. Paul livestock market, had gross sales of more than $38,000,000 in 1926 and for the three-year period from 1924 to 1926 handled about one-fourth of the livestock on the South St. Paul market.

MILK AND MILK PRODUCTS

The National Cooperative Milk Producers' Association is composed of 39 regional cooperative dairy organizations. These regional organizations represent more than 300,000 farmers who handle cooperatively, through their organizations, 20 per cent of the total milk products, valued at half a billion dollars. The local cooperative associations included in the national federation may be roughly classified as follows:

(*a*) Collective bargaining associations with the check-off by dealers of association charges.

(*b*) Collective bargaining associations supported by membership dues without check-off.

(*c*) Collective bargaining associations where associations own surplus plants and operate with or without check-off.

(*d*) Collective bargaining associations with which are affiliated manufacturing cooperatives who purchase their milk just as other manufacturers, dealers, and distributers do, but whose membership is almost identical with that of the collective bargaining association.

(*e*) Cooperative wholesaling of milk, with ownership of country plants and receiving stations in cities.

(*f*) Cooperative pooling organizations with which is combined extended ownership of country plants and wholesaling operations in cities, together with distributive arrangements for manufactured milk products.

(*g*) Cooperative city distributive associations owned by the farmers.

The foregoing classes are all in existence to-day, but no single association at the present time can be said to have achieved the full measure of development. They are all constantly changing and making adaptations. A few examples of the prominent cooperative types will illustrate the magnitude and importance of this movement.

The Dairymen's League Cooperative Association of New York is an incorporated body embracing nearly 1,000 local incorporated leagues which are divided into 24 districts. The individual members number more than 70,000. This association is the greatest single dairy farmers' cooperative association in the world. It has its own

plant which distributes annually on an international scale products valued at more than $9.000,000. The league has spent as much as $600,000 annually to advertise its products.

The Cooperative Pure Milk Association of Cincinnati has purchased the business of the largest retail dealer in the city. The association collects the milk from the producers, which is Pasteurized in its own plant and distributed at retail with association equipment in Covington, Newport, and Cincinnati. The value of the retail business purchased to consummate this plan was placed at more than $3,000,000.

The Land O'Lakes Creameries (Inc.) is comprised of 440 cooperative creameries in the Minnesota region. The cooperative creameries making up the membership are owned and operated by farmers, the average patronage of each creamery being about 200 farmers and the average area from one to two townships. The yearly production of butter is about 250,000 pounds per creamery. Through a rigid standardization program insuring butter uniform in quality, in composition, and in package, the organization has been able to perfect a national marketing program. It is estimated that the Land O'Lakes Creameries manufactured and sold approximately 100,000,000 pounds of butter in 1926.

ASSOCIATIONS CONCERNED IN MARKETING

COMMODITY EXCHANGES

Such bodies as the New York and New Orleans Cotton Exchanges, the Chicago Board of Trade, and the New York Produce Exchange are for the most part cooperatively owned and managed by their members. They function like trade associations in many respects, and, as will appear in the discussion of intergroup activities, have aided in the development of standards of grades and qualities, of trading rules governing the conditions under which commodities are bought and sold, and of ethical practices. In some cases, like that of the National Grain Dealers' Association, the local exchanges are admitted as group members of a national trade association, and as such their members are bound by the rules of the national body.

PERISHABLE FRUITS AND VEGETABLES

The distinction between a farmers' cooperative selling organization and a trade association of shippers of fruits and other perishables is not always clear, for frequently the principal shippers in the latter type of association are also growers. The California Citrus Exchange, for example, although largely a cooperative marketing association, has many resemblances to a trade association. It and

its affiliated local groups provide standards of size and quality which must be adhered to. It maintains sorting, grading, and packing plants and has a careful system of inspection. With the aid of the railroads and the Department of Agriculture, its traffic directors route cars to cities where its products will find the most ready sale, and prevent sending perishables into any city in excess of demand, with consequent severe price decline. In the past these price declines have been such that the shipper could not realize enough from a carload to pay the freight. If cars are rerouted there are additional freight charges, and in some cases a rerouted shipment may spoil in transit and be a total loss.

The International Apple Shippers' Association, with headquarters at Rochester, N. Y., represents a number of large growers, cooperative associations, and leading packers, shippers, storers, exporters, and distributers of apples in the United States, Canada, England, Scotland, Wales, continental Europe, and Tasmania. In addition, the membership includes a large group of producers, packers, and distributers of fresh fruits and vegetables. It enforces ethical standards among its members on penalty of expulsion from the association. It collects statistics relating to movements and storage of apples and other perishable commodities. It has made cost studies of harvesting, packing and packages, storage, and transportation, including refrigeration and overhead costs. Advice is given to members, without charge, on transportation claims. Following the Federal law establishing standard grades for apples in barrels and the standard-sized barrel, the association aided in drafting and advocating the New York mandatory apple grading bill which went into effect in 1914. Similar mandatory or permissive acts have since been adopted in more than half the States. The laws and regulations relating to the standardization and other requirements for fresh fruits and vegetables are compiled and published by the association. The association is interested in transportation questions affecting more than a single locality and has tried or participated in upward of 40 cases before the Interstate Commerce Commission, as well as representing its members before other bodies and committees. Conferences are held at regular intervals with representatives of steamship lines serving both Atlantic and Pacific ports. A special European representative has headquarters in London. The association has conducted a survey of retail distribution in Boston.

In order to popularize apples, national apple day was developed by the association in 1913 and has been enlarged to what is now known as national apple week. The movement has been supported by dealers, packers, shippers, growers, distributers, wholesalers, retail merchants, jobbers, brokers, railroads, steamship lines, chambers

of commerce, State and national departments, public officials, and the press. The National Apple Week Association (Inc.), has been recently organized to carry on this work, and to extend the publicity and advertising campaign throughout the season.

The American Fruit and Vegetable Shippers' Association has over 500 members representing the annual movement of approximately 600,000 cars, and its income ranges from $40,000 to $45,000 annually. The staff of the organization consists of a manager and six assistants. The association operates a crop survey, furnishing its members monthly with the progress of some 20 of the carload commodities in each State. A record is kept of refusals to arbitrate and reports are made on chronic rejectors. The association has been interested in the handling of embargoes, in obtaining assurance that rail embargoes will not be laid without at least 48 hours' notice, in charges by the carriers for ice used in refrigeration and carried in bunkers, in improved icing facilities at important points, and in improving the terminal handling of perishables at New York and other large consuming points.

In 1919 the International Apple Shippers' Association, the American Fruit and Vegetable Shippers' Association, and other groups compiled, approved, and recommended for use standard rules and definitions of trade terms for the fruit and vegetable industry. These defined such terms as "To-day's shipment;" the conditions attaching to "in transit or rolling car sales" with respect to division of freight and refrigerating charges and possible demurrage; the terms under which price quotations are made; minimum and maximum loading; conditions under which sales through brokers shall be made; shipments below contract requirements; rejection; failure of the railroad to notify the consignee of arrival at destination; time within which notice of complaints and adjustments should be made; and the provision that buyers and sellers may agree to arbitrate under the rules and machinery provided by the various national associations or their joint arbitration committee. A similar group of organizations compiled and approved a standard form of confirmation of sales and the brokers' standard memorandum of sale.

The Department of Agriculture reports that by means of cooperation with the manufacturers and notably with those who are members of the Standard Container Manufacturers' Association making rotary-cut wood containers there has never been a prosecution under the standard fruit and vegetable container act, providing standard dimensions for various types of fruit and vegetable baskets. Thus, anyone may sample the peaches in the markets of two or three cities in as many different States and compare prices and quality without having to make calculations for discrepancies in the size of baskets.

A wholesale buyer knows exactly the quantity and size of peaches in a carload, for example, when he knows the number of baskets and the approximate number of peaches per basket.

FOOD MANUFACTURING

FLOUR MILLING

The Millers' National Federation draws its membership from 31 States and represents an annual output of wheat flour of approximately 73,000,000 barrels, or about 65 per cent of the total output in the United States. It maintains a traffic department, technical department, and cost accounting service, the latter being handled by a firm of business engineers.

The federation maintains an export agent at New York to promote safe conditions of loading, transportation, and delivery of flour in export trade, and the settlement and collection of claims arising from loss and damage caused by the ship's negligence.

General and commercial counsel are retained, the latter serving in transportation and traffic matters. The federation has developed a uniform sales contract, now in general use by mills, to facilitate sales of flour and feed for future delivery upon uniform terms and conditions of sale, including uniform assessments for carrying flour and feed beyond the time of delivery specified in the contract. The uniform sales contract also makes applicable to the business of the industry as a whole decisions which may be rendered in the case of the enforcement of contract by any individual mill. The federation also secures for its members registration of brands and trade-marks and renewals of same, without cost to them except registration fees.

The federation has dealt with the Bureau of Chemistry of the Department of Agriculture and the joint committee on definitions and standards in amending the allowable maximum moisture content for flour to conform to modern milling methods. A new method for determining the moisture content of flour was worked out by the federation's technical department.

The Washington office has dealt with questions such as the basis of settlement of claims by the Shipping Board, the maximum moisture standard for flour, legislation pending in Congress, and regulations imposed by various foreign governments on flour. In many instances activity by the federation has resulted in the repeal or modification of regulations.

The Association of Feed Control Officials has approved a system of uniform labels for feeds and a uniform application blank for registration of feeds in cooperation with the federation. The feed control officials of 33 States have indicated their willingness to adopt these forms as soon as practicable.

BAKING

The American Bakers' Association, representing upward of 600 manufacturers and including a number of the larger organizations, has established the American Institute of Baking, which absorbed some $85,000 of the association's total budget of $110,000 for the year 1926. The dues of the national association are $25 a year per oven.

The American Institute of Baking has conducted extensive research into methods used in mixing and baking bread and into the ingredients used. It tests different brands of products used in baking, such as baking powder, sugars, malts, milks, salt, flavoring, coal, coke, and other ingredients or supplies which are variable in composition or are purchased on specifications, and certifies to its members those which meet the required tests. It issues popular bulletins on nutrition, through a department of nutritional education. The flour laboratory studies flours in their application to use in the shop, and analytical results are supplemented by baking tests. The laboratory rates samples of members' products submitted, which enables the members to determine the quality of their bread and obtain information as to the causes of removable defects.

The trade promotion department of the institute has a statistical and informational service, carries on cooperative advertising among associated industries, and conducts educational publicity and service. A monthly journal entitled "Baking Technology" is published. A school of baking is maintained at which three courses of 16 weeks each are given each year. The registration for each class is restricted to 36.

The Associated Bakers of America have a membership of about 2,800, comprising a larger proportion of smaller firms. These two groups have a considerable problem in connection with the administration of various food and drugs acts. The associations in the baking industry are also concerned in securing uniform Federal and State regulations regarding weight standards and inspections. Such questions are taken up with the weights and measures officials at the National Conference on Weights and Measures held at the Bureau of Standards each year.

ICE CREAM

In the ice-cream manufacturing and distributing industry the development of standards occupies a prominent position. The National Association of Ice Cream Manufacturers has taken a stand against the use of any ingredients which may be injurious to health. It is also studying the proposals that ice cream be sold by weight instead of volume.

MEAT

The Institute of American Meat Packers, with 260 members, represents the industry in matters of trade and governmental relations, furnishes advice to members on accounting problems, and has committees and staff departments which aim to improve relations with retailers and with livestock producers. A department of public relations and trade handles advertising activities, prepares and issues publicity concerning the industry and its products, and aims to correct unfair statements made either about the industry or the product. It also endeavors to extend the market for meat, both at home and abroad. The institute is represented, together with livestock growers and retailers, on the National Livestock and Meat Board, which works with the Department of Agriculture in promoting public knowledge of the food value of meat and of the means of making the best use in home cooking of the different cuts. This board is endeavoring to work out a scheme for uniform grading of meat.

The institute has a department of purchasing practice, which functions through an allied equipment and supply company to pool purchases of member companies on certain supplies, other than livestock, in order to obtain substantial savings.

A department studies wasteful practices in the industry to determine how conditions may be bettered. It offers awards for the best livestock at leading stock shows and carries on a campaign with the department of public relations and trade to cut down the losses incurred through bruises and other injuries in bringing the livestock to the packing plants. A cooperative project relating to type improvement through cross breeding is being carried on with a large university.

A department of home economics teaches the best methods of preparing meats for the table, and a department of nutrition gives out information on the food value of meat and supervises all research activities carried on by the institute on this subject. Through a cooperative arrangement, the Institute of Meat Packing, connected with the University of Chicago, offers instruction in packing-house subjects to men already engaged in the industry and to men who plan to enter it. Both evening classes and home-study courses are offered. Evening classes have been established in several other packing-house centers by means of similar arrangements with local educational institutions. An extensive research laboratory is maintained at the University of Chicago, which has studied the curing of meat and the prevention of spoilage from slimes, molds, and other causes. In cooperation with the Tanners' Council of America at its research laboratory at the University of Cincinnati the curing of hides has been the subject of considerable research.

CANNED AND PREPARED FOODSTUFFS

The work of trade associations representing the manufacturers of prepared and canned foodstuffs, like that of many other associations concerned with food, usually involves some contact with the administration of the national food and drugs act and the many State laws which conform more or less closely to the Federal law.

The National Canners' Association conducts extensive research in methods of canning and of preventing spoilage which sometimes occurs in canned goods. The association encourages high standards of performance among its members, seeking to avoid discredit to the canning industry and prejudice against canned goods which may arise from poor practice.

MISCELLANEOUS FOOD MANUFACTURES

The Rice Millers' Association carries on research into processes, makes market analyses, and conducts statistical and legislative service. The National Kraut Packers' Association aims at maintaining a uniformly high product on the part of its members and to that end engages in research. It also carries on a representative advertising campaign. The National Confectioners' Association makes a special point of Federal, State, and local legislation.

The Institute of Margarine Manufacturers carries on research and a campaign of advertising and public education in regard to the merits of its members' products. It is important to member manufacturers that regulation of the oleomargarine industry under Federal and State statutes should be uniform and not unduly restrictive. In one State, for instance, both the manufacture and sale of oleomargarine are prohibited. According to a report of the National Distribution Conference, in Iowa a package of oleomargarine must bear the words "A substitute for butter," while in Minnesota a package must not bear the words "A substitute for butter."

The American Bottlers of Carbonated Beverages collects statistics in regard to the business of its members, conducts technical research, and renders traffic, insurance, advertising, tax, and legislative service to its members. It has an attorney to attend to its members' trademark problems.

MISCELLANEOUS ACTIVITIES

IMPROVED AGRICULTURAL METHODS

Preceding pages have shown how various associations are aiding in a more intelligent utilization of land and a greater efficiency in production of farm products. In the field of soil analysis and utilization of farm products, for example, the National Fertilizer Association has supplemented the work of the Bureau of Soils of the Department of Agriculture. Cooperative associations have studied the fertilizer problems of their members and have aided in working

out, with the Department of Agriculture, commercial standards for fertilizers.

The National Canners' Association, the Seed Dealers' Association, and other bodies, together with cooperatives, have jointly worked to encourage and facilitate the use of the best seed by farmers. They have done this directly and, as in the case of the use of fertilizers, through cooperation with the Department of Agriculture, State experiment stations, and county and farm bureau demonstration agents.

The manufacturers of farm equipment have aided in the wider use of efficient implements and farm machinery. Use of electricity on the farm has been encouraged by the National Electric Light Association. Control of pests has been furthered by the Insecticide and Disinfectant Manufacturers' Association, as well as through the various research and educational agencies of public and semipublic character. Use of better bred livestock has been due in no small measure to the efforts of the different breeders' associations and is a subject in which the American Railway Development Association, the Institute of American Meat Packers, and the Tanners' Council of America have done active work.

Means of bringing the right kind of farmers to the land have been the subject of discussion by the American Railway Development Association, and the farm lands division of the National Association of Real Estate Boards, which have aimed to minimize the practice and effects of misleading land-promotion schemes.

STATISTICAL REPORTS

The New Orleans Cotton Exchange issues a monthly report on cotton receipts. The Rice Millers' Association compiles data on rice receipts and stocks. The New Orleans Board of Trade reports monthly on rice distribution through New Orleans. The American Fruit and Vegetable Shippers' Association issues monthly reports by States on shipments and probable yields of perishable foods and vegetables. The National Canners' Association likewise utilizes statistics on yields of various crops so that the supply of given commodities may be known as far in advance as possible. This aids orderly marketing through its influence on the commitments and merchandising policies of canners, wholesalers, jobbers, and retailers.

Reports on hide production and stocks are collated and interpreted by the Institute of American Meat Packers and the Tanners' Council of America.

WAREHOUSING

The uniform warehouse receipts act, which was promoted by the American Warehousemen's Association and promulgated by the National Conference of Commisioners on Uniform State Laws, has

helped to make warehouse receipts of staple commodities a more satisfactory form of credit both for the borrower and for the bank.

The use of cold storage has also been promoted by research into the effects of storage at various temperatures upon different products such as poultry, eggs, fruits, and vegetables, which has been carried on by Federal and State agencies, the National Canners' Association research laboratories, the Institute of American Meat Packers, and other bodies.

STANDARDIZATION

The driving force toward effecting standardization of grades and qualities for practically all agricultural commodities has come from organized groups. More than 70 years ago an attempt to standardize the grades of wheat was made by an exchange in Chicago. For many years standards were formulated by the exchanges in different cities, but they varied from city to city, and attempts to secure uniformity were not held successful. Through efforts of the National Association of Grain Dealers, farmers' cooperative selling organizations, and representatives of the milling industry and of feed consumers, the national grain standards act was passed by Congress providing for the establishment of Federal inspection. These standards enable the country elevators, both cooperative and commercial, to be assured of fairness in the grading of their shipments. The National Association of Grain Dealers and other bodies cooperate in the enforcement of the standards, as, for example, when violations of provisions relating to the allowable moisture content of oats have been brought to the attention of association officials, their offending members have been disciplined.

The exchanges on which cotton is bought and sold many years ago attempted to set up standard grades. Their efforts were only partially successful, for their standards tended to change from year to year and were not uniform throughout the country. Well standardized grades were effected in 1903 only by the enactment of Federal legislation with Federal inspection. World-wide recognition of these standards has been effected through their acceptance by leading foreign exchanges and associations.

The International Cotton Seed Crushers' Association includes in its rules, which are enforced under penalty of expulsion for violation, specifications of grade and quality, provisions for adjustments and permissible variation as to grade and quality, the methods of chemical analysis, and the functions of chemists. The association has a list of approved professional chemical inspectors and requires that the quality of all exports be certified by one of the association chemists.

The Department of Agriculture reports that the advantages of standardization in cotton, as well as in grain, are enhanced through their recognition and general use by trade associations and that the Federal inspection operates more effectively through cooperation of the exchanges, growers' cooperatives, and organizations representing spinners.

An interesting counterpart to the cotton standards act is the establishment, in 1926, of standards for the thickness of the wool fiber, by joint action with the National Association of Wool Manufacturers, the American Association of Woolen and Worsted Manufacturers, the National Association of Worsted and Woolen Spinners, and many wool growers' associations. The Department of Agriculture has the custody of the standard samples and is intrusted with preparing duplicate samples for use by the trade. This procedure involves no special legislation, and use of the standards in buying and selling is not compulsory. The standards are being widely used, and, in case of controversy, settlement of disputes as to whether the wool is of a given thickness can be made promptly and without costly litigation. The wool standards have been accepted by the British Wool Federation and other British trade associations, assuring world-wide use. The same bodies are at work on other standards relating to length of fiber and condition of wool.

ALLIED GROUPS

Among trade associations in other fields which have taken a constructive part in the solution of intergroup problems in the field of agricultural products, may be mentioned the American Bankers' Association, which has a standing committee devoted to problems connected with financing farm products and whose affiliated State bankers' associations have aided extensively in drafting and advocating State legislation designed to give better financing facilities to farmers and dealers in agricultural products.

The American Warehousemen's Association has likewise aided through its promotion of the uniform warehouse receipts act and the uniform cold-storage act. The work of the refrigeration groups has also been important. Similarly, the various bodies which have cooperated in the development of a good-roads program and the regional shippers' advisory boards have all contributed to efficiency in the distribution of agricultural products.

Associations of textile manufacturers have aided in a number of projects connected with the standardization and marketing of textile fibers; and there is a long list of associations selling machinery, implements, fertilizers, containers, and other commodities to farmers, which have engaged in research or otherwise cooperated toward the solution of farmers' problems.

CHAPTER XXII

WHOLESALE AND RETAIL TRADE

WHOLESALE GROCERS

The National Wholesale Grocers' Association represents approximately 50 per cent of the total number of concerns engaged and transacting probably 75 per cent of the total wholesale grocery sales of the country.

In cooperation with the Bureau of Business Research of Harvard University it has made annual studies of costs of doing business. Its canners' conference committee confers with canners and brokers on questions having to do with the promotion of sales of canned goods and the purity and wholesomeness of such merchandise. It endeavors to suggest uniform, clear, and equitable forms of contracts for the purchase of commodities with the aim of preventing sales litigation.

Its economy conference committee conducts trade conferences under the auspices of the Chamber of Commerce of the United States with producers, manufacturers, wholesalers, retailers, and other merchants for the purpose of standardizing and simplifying the sizes, manufacture, operation, and distribution machinery and methods.

Its general education committee disseminates information concerning the service of the wholesale grocer. It cooperates with Federal and State departments in the enforcement of pure food laws, with the Department of Commerce in simplification and standardization work, and since 1906 has studied State and Federal legislation and has supported measures to prohibit all adulteration and misbranding of food, designed upon the basis of uniformity with the Federal food and drugs act of June 30, 1906, in the statutes of the respective States. Its studies include railroad service and rates, uniformity of laws on commercial subjects (particularly pure foods), and arbitration of commercial disputes.

RETAIL GROCERS

The National Association of Retail Grocers has encouraged improved standards of service in its field, and has undertaken a program for vocational education for those engaged in the retail grocery business. Through the cooperation of the Federal Board for Vocational Education a program was outlined for preparing teaching material

and recommendations for the conduct of local classes for salesmen, for deliverymen, and for managers, including owners. The objectives of the educational program of the association were formulated as follows:

1. To develop practical agencies for training those engaged in the retail grocery business.

2. To make those agencies available to all retail grocers and their employees throughout the United States.

3. To insure more successful results to those engaged in the retail grocery business.

4. To give greater satisfaction to the consuming public.

It was found necessary to prepare a complete line of textbooks and other instructional material for use in these evening classes, which are conducted by the conference group method rather than by the direct instructional method of lecture or reading and recitation. The responsibility for organizing classes has been delegated to local groups.

The national group, however, aids in obtaining the cooperation and assistance of public educational agencies and acts as an advisory body to all local groups who undertake training within the field. This assistance includes supplying teaching material, making personal visits, supplying bibliographies, and serving as headquarters for exchange of ideas. The problem of training conference leaders is to be taken up shortly.

The various steps in the program were written up and published by the Federal Board for Vocational Education in a bulletin designed to be helpful to other national trade associations. The bulletin included a sample of instructional material on the subject of increasing sales. This material is devised for use by conference groups and aims to encourage in the salesmen or manager the attitude of getting the customer's point of view and of studying his requirements. From this approach it takes up store, telephone and delivery service, credit service, personal interest in customers as an aid to increasing sales, increasing the average sale, window displays, special sales. publicity, and other devices for increasing sales.

WHOLESALE AND RETAIL DRUGGISTS

The National Wholesale Druggists' Association prior to 1880 made a study of fire risks in its members' establishments, and through collection of data as to actual fire losses and recommendations as to means of reducing fire hazards the rate of fire insurance on its members' plants has been cut to less than half. The association cooperated with the Department of Agriculture in working out the regulations for drugs under the national food and drugs act. It has worked with the Treasury Department in problems connected with the dis-

tribution of alcoholic beverages and compounds for medicinal use under the national prohibition law.

The National Association of Retail Druggists has a membership of some 20,000 and is therefore second in point of size in the entire retail field.

LIBRARY OF

DRY GOODS

NORWICH UNIVERSITY

The National Retail Dry Goods Association includes in its membership large retail dry goods and department stores which have combined sales of about $3,000,000,000 a year. Its purpose is to "foster the business of distributing at retail those things which are sold through stores of the type represented in our membership, and to build up a better and more sympathetic understanding between these stores and those with whom they deal." The association cooperates with Government departments, with other organizations, and with consumers interested in the attempt to simplify and render more effective the business of distribution.

Owing to the diverse elements in the management of large stores, the association has created seven groups, made up as follows: (1) The controllers' congress, made up of the controllers in member stores; (2) the sales promotion division, made up of sales promotion and advertising executives; (3) the traffic group, made up of traffic men; (4) the retail delivery association, made up of delivery superintendents; (5) the store managers' division; (6) the merchandise managers' division; (7) the personnel group, made up of personnel directors.

The association and its associate groups maintain 10 bureaus for collecting information as to best practices and for making constructive studies. The bureaus correspond, for the most part, to the associate groups, with the addition of bureaus covering research and information, publicity and bulletin, and insurance. A monthly bulletin is published, together with a bimonthly data book and special reports from time to time.

The standard cost-accounting system worked out by the controllers' congress, and especially its classification of expense, has been widely adopted both within and outside the membership of the association. The controllers' congress has also engaged in work connected with merchandising control, budgeting of expense, studying of inventory shortages, mark ups, mark downs, turnover, and similar problems faced by retail concerns. An annual study of operating costs is made in cooperation with the Harvard Bureau of Business Research. The association has contributed to the support of a school of education for store service at Simmons College.

Among the subjects studied by the association's bureau of research and information are operation of bargain basements; use of mechani-

cal equipment in bookkeeping departments; operation of alteration workrooms; operation of personal shopping bureaus; merchandise control of stocks; court decisions on itinerant vendor and transient merchant legislation; operation of phonograph departments; receiving and marking procedure; store-closing hours and vacation policies; public restaurants—their status, functions, methods of operation, and operating expenses; methods of prorating wrapping charges in department stores.

In improving its public and governmental relations the association has met with organized groups of consumers such as the General Federation of Women's Clubs. It follows Federal legislation which may affect distribution and arranges for representation at congressional hearings.

Credit matters in the retail dry goods trade are handled by the National Association of Retail Credit Men, which has 11,700 members. This body, organized in 1912, aims at organizing a local association in every city where 10 or more merchants are affiliated with it.

The local association acts as a central clearing house for credit information relating to the customers of retail establishments. The association conducts an annual "Pay your bills promptly" campaign, with newspaper advertising and use of the radio, billboards, and other mediums. It has been concerned with State legislation on garnishment and liens and has assisted honest debtors, who have purchased in excess of their ability to pay, to liquidate their accounts by pooling the claims and allowing them to pay in small installments. The association studies the standardization of credit-department methods, including mechanical work, such as billing and bookkeeping. Dues for individual membership are $5 a year, including subscription to the Credit World. The association publishes a list of unreliable collection agencies and disseminates warnings and information with reference to fraud, including worthless-check operators. It has a tracing system for locating missing debtors.

MISCELLANEOUS WHOLESALERS

Of the 50 or more national and interstate associations of wholesalers, a number have already been mentioned in connection with various manufacturing industries and branches of distribution. The American Wholesale Grocers' Association, for example, has nearly 1,600 members, the National American Wholesale Lumber Association 800 members, and the National Food Brokers' Association 800 members. In addition, there are bodies representing distributers of optical goods, hats, wholesale distributers of dry goods, shoes, millinery, hardware, furniture, food products, radio, saddlery, stationery, and other lines.

MISCELLANEOUS RETAILERS

A number of the leading retailers' associations have been mentioned earlier in connection with building materials, automobile tires, and various food and drug products.

The National Retail Hardware Association, with 22,000 members, is the largest in the field. It represents hardware merchants in problems connected with simplification and standardization and trade relations with wholesalers and manufacturing groups and has worked out cost accounting and other problems connected with the operation of retail hardware stores. One of its most interesting undertakings was that of securing revisions of school textbooks relating to various types of retail transactions. The association employed several well qualified individuals to make a review of textbooks and to rewrite the problems in which false assumptions were made. The publishers and authors were approached and in most cases showed readiness to accept the proposed changes in subsequent editions. The effort was carried still further by undertaking a similar study of the teaching material used in normal schools to diminish popular misconceptions as to the profits of retailers.

In general, the retailers' associations have improved methods of retail store operation, including the elimination of waste from " dead " inventories. Through their development of standardized cost accounting methods and forms they have enabled members to simplify their bookkeeping. They also aid in the promotion of the use of accurate weights and measures.

CHAPTER XXIII

BANKING AND INSURANCE

Trade associations in the banking business are characterized for the most part by the high percentage of membership which they draw from their field. They are all interested in legislative and regulatory problems and in the detection and prevention of fraud. Their activities cover practically the entire range of bankers' problems.

BANKING

The American Bankers' Association, organized in 1875, is the most comprehensive organization in the field. It has a membership of about 22,000 banks, out of a total of nearly 29,000. The dues range from $10 for the smaller institutions to $250 for the largest. It has four separate divisions—for national banks, for State banks, for savings banks, and for trust companies—and three sections devoted, respectively, to the American Institute of Banking, to clearing houses, and to State secretaries. Affiliated with it in most States are State bankers' associations, which are concerned largely with matters of State legislation. The national bank section furnishes a medium for exchange of views upon the economics of banking and for the cooperative study of problems connected with the operation of banks. It maintains a deputy manager in Washington, D. C., who serves as a contact for the division and its members with the various agencies of the Federal Government with which they deal.

The savings bank division is concerned not only with operating problems but with the promotion of general thrift. It has taken a leading part in the movement to develop school savings banks in American education and as a result of extensive research has worked out a standardized method for handling the details. It investigates and advises members on industrial savings banking, home savings, thrift clubs, and mechanical devices. It issues periodical reports on school and other forms of savings.

The State banking division has considered the relationship of State banks to the Federal reserve system, has investigated the orderly marketing of farm products and the opportunities of banks in connection with such enterprises, and the rediscount of mortgages

with Federal farm loan banks, joint-stock land banks, and private mortgage companies.

The trust company division has committees handling the subjects of fees, staff relations, community trusts and insurance trusts, and cooperation with the bar.

The American Institute of Banking has worked out courses of training for the younger employees of banks and has prepared a considerable number of texts. It has 192 local chapters with a total membership of more than 57,000, of whom 37,000 meet one or two nights each week to study the prescribed institute courses.

The clearing-house section acts as national headquarters for the local clearing-house associations. It was concerned in the standardization of sizes of checks, has taken up such problems as service charges on small checking accounts with which local clearing houses are associated, has participated in the development of standard warehouse forms, and is at work on clearing-house rules.

The State secretaries' section has worked on such problems as the simplification of income-tax forms for banks and investigations as to rates on bank burglary and fidelity insurance.

The association developed, after years of study, fidelity bonds, and forms for burglary and robbery policies which have been widely adopted by insurance companies.

The American Bankers' Association Journal is said to have the largest number of paid subscriptions of American financial journals. A special telegraph code available to members permits economical and confidential communications.

A commerce and marine commission is interested in matters affecting the mechanics and financial transactions of foreign trade. An economic policy commission is assigned the responsibility of studying questions involving money and currency, public finance, and the economic policy of the Government, including Federal taxation and all other matters not delegated specifically to other committees of the association. Its findings are used as a guide by the officers and conventions of the association.

The agricultural commission has studied the problems of financing farmers and has held banker-farmer conferences in various parts of the country. It has aided the various State bankers' associations in developing sound laws affecting the financing of agriculturists and the improvement of farm products.

MUTUAL SAVINGS BANKS

The National Association of Mutual Savings Banks is concerned with methods of promoting thrift, the operation of various types of

savings activities, and State legislation and regulation. Its annual meetings serve as a clearing house for the exchange of ideas and for the discussion of policies.

INVESTMENT BANKING

The Investment Bankers' Association of America has as members 668 principal houses, with 350 branch-office memberships in addition. It has 17 geographic groups, 16 in the United States, organized to handle local problems. It has 19 standing committees, of which 7 are devoted to different types of securities, namely, Government, municipal, foreign, industrial, public utility, real estate, and irrigation. The association is making an effort to improve offering circulars. Members submit circulars for new issues to the appropriate committee, which grades them and points out any inadequacies, ambiguities, or other shortcomings. In practically all cases suggestions by the committee have been adopted.

The municipal securities committee has been interested in promoting State legislation which replaces the old tax-rate limit for municipalities by the more modern debt limit. It has also encouraged the issuance of the sounder serial maturity bonds which have become more general in municipal issues than long-term maturities. The public utility securities committee in 1913 induced the association and various member houses to underwrite, at their own expense, a service supplying reports on the acts and regulations of the various State public-service commissioners. These reports have been of service to the commissioners themselves as well as to other groups. In 1923 it developed that small holders were being tricked out of their Liberty bonds by fraudulent security dealers. In order to discourage the practice the Government bond committee recommended that no member of the association advertise to trade in Liberty bonds. The association members are reported as all complying with the recommendation.

The foreign securities committee in the autumn of 1926 established, in cooperation with New York University, an institute of international finance to report on foreign economic conditions.

The association has issued a number of booklets for the use of individual investors and banks. The 17 advertising committees have aided in a campaign against fraudulent financial advertising, and a field secretary is specially assigned to aid the blue-sky law commissioners to proceed against fraudulent and other worthless securities.

The association maintains a monthly bulletin. Its board of governors meets four times a year, and the association has an annual convention.

FINANCIAL ADVERTISING

The Financial Advertisers' Association is composed of members drawn from all types of banks and financial institutions. It is concerned mainly with effective methods of advertising. It is also interested in the prevention of fraudulent advertising.

FINANCE COMPANIES

The National Association of Finance Companies is particularly concerned with maintaining a sound basis for installment selling of automobiles and other commodities. In 1925 it issued a set of recommendations, worked out in cooperation with other groups, setting down certain specific rules with regard to installment selling of passenger automobiles.

INSURANCE

LIFE INSURANCE

The Association of Life Insurance Presidents, organized in 1906 with 13 members, now has 55 members—46 domestic and 9 Canadian. The total admitted assets of the domestic-member companies aggregate 86 per cent of the total admitted assets of all United States legal reserve life-insurance companies, while the 9 Canadian members hold 83 per cent of the Canadian total.

The primary purpose of the association at its organization was to provide comprehensive, detailed information to legislative insurance committees. Cooperation of insurance trade papers, insurance commissioners, and individual insurance companies has brought about standardization and uniformity of insurance reports. Current statistics and other information primarily segregated for legislative bodies were expanded for the general advantage of policyholders. Investments of life-insurance companies are tabulated by States and by type of investment. Data on number and amount of new policies and premium collections, now available monthly, aside from other considerations, have yielded a valuable indicator of prosperity and savings. Apportioned on ordinary policies of the membership, the expenses of the association have averaged less than 1.2 cents per policy.

The Life Insurance Sales Research Bureau is a clearing house for its 96 member companies on plans of training, selling, and advertising. The statistical work of the bureau includes sales records by States, surveys of policy lapses, reviews of business conditions, an index of sales possibilities by counties, and tabulations of comparative agency costs. A four-volume manual describing methods used by successful agency managers is supplemented by a managers' magazine, which appears quarterly.

The National Association of Life Underwriters is an organization of 180 local groups representing the selling agents of insurance companies. It aims to improve public relations by standardizing the terms used in connection with life insurance. The activities of its legislative and publicity committees dovetail with those of the Association of Life Insurance Presidents.

FIRE INSURANCE

The National Board of Fire Underwriters represents about 210 of the stock fire-insurance companies of the country. It maintains an actuarial bureau which compiles statistics of all fires reported in the United States, classifying them according to causes, relation of insured value to total value, and contributory conditions. The findings of this bureau are largely used in the determination of fire-insurance rates for different classes of occupancy and for different cities.

The rate charged for fire insurance on a building is determined by the National Board of Fire Underwriters, partly by the building's use and the character of the structure, and partly by the general rating given the city and district in which it is situated. In determining their ratings, the underwriters consider the past record of the city with regard to fires, the possible danger from great conflagrations as determined by engineering surveys, and the effectiveness of the fire department and its equipment. It has been common for trade associations to represent their respective industries in negotiations for changes in rates. Through joint investigations, by the trade association and the underwriters, of precautions which may be taken in plants in order to reduce the fire hazard, the number of fires in certain industries has been appreciably diminished.

Among other activities of the national board may be mentioned the maintenance of an engineering bureau, which has prepared suggested model building code regulations and other suggested codes for voluntary use in the construction of different types of structures. In the construction of certain types of buildings or plants in which fire hazards are great, such as cotton warehouses, it is customary for the underwriters' rules to be observed in order that advantage may be taken of lower insurance rates.

The National Board of Fire Underwriters also cooperates in the work of the National Fire Protection Association, which in turn has as members a large proportion of the trade associations of the country, including especially the producers of building materials.

The National Association of Mutual Insurance Companies represents 748 companies carrying about 50 per cent of the total mutual insurance other than life. It has done work relating to fire pre-

vention, and has been active in promoting a uniform State law governing mutual insurance companies.

Various groups cooperate with the United States Chamber of Commerce and the local bodies in different cities in the holding of an annual "fire-prevention week" and an intercity fire-prevention competition. The national bodies provide posters, material for lectures, and instructions to be given in schools, and general publicity matter for public education and the carrying on of various preventive measures. That the movement for fire prevention is gaining headway is shown by the decrease in fire losses in the United States and Canada since 1922, in spite of the large increments to the existing buildings in the country, the expansion in the petroleum industry, and increased hazards due to an increased number of automobiles, garages, and service stations in which inflammable liquids are handled.

One of the achievements of cooperative organization in the fire-insurance business has been the establishment of the underwriters' laboratories, which have made specifications for different types of protective equipment, including fire extinguishers, self-closing fire doors, metal doors, windows with wire glass, and various materials used in construction. Exhaustive tests have been carried out to serve as a guide in forming these specifications, and there is a system of factory inspection to give assurance that goods labeled to show accordance with the underwriters' laboratories specifications are up to the required standard.

CHAPTER XXIV

TECHNICAL, AUXILIARY, AND SPECIAL GROUPS

The work of most trade associations brings them in touch with various bodies that specialize on problems common to a large number of groups or that are designed to cope with problems affecting the relations of two or more groups. The effectiveness of these other bodies, which are either federations of trade associations or whose membership cuts across those of trade associations or professional societies, depends in many cases on the cooperation which they receive from trade associations. The American Society for Testing Materials and the American Engineering Standards Committee, in connection with the development of standards, and the National Conference of Commissioners on Uniform State Laws, in connection with uniform legislation, are examples of such cooperation with trade associations. The National Association of Credit Men, the National Association of Purchasing Agents, the National Safety Council, the American Public Health Association, and the United States Chamber of Commerce represent other bodies of importance to trade associations.

AMERICAN ENGINEERING STANDARDS COMMITTEE

Probably the broadest organization devoted to standardization, considering both the scope of activity and range of constituent membership and cooperative bodies, is the American Engineering Standards Committee, which was formed in 1918. This committee has as constituent member bodies a number of the leading engineering societies, the American Institute of Architects, various transportation and public utility groups, six Federal Government departments, and some other organizations, including a safety group and a fire-protection group. In addition it has as sustaining members a considerable number of manufacturing and public utility companies. Cooperation is not restricted to the membership, and more than 450 trade associations, technical societies, companies, labor organizations, and Federal, State, and local governmental agencies and civic groups are officially cooperating with it through accredited representatives.

The committee takes up only projects which have been sponsored by one of the member bodies, and only upon formal request from a member body. Usually a conference is held to determine whether the work shall be undertaken, what its scope shall be, how it shall be organized, and how it is to be related to other work.

As examples of the widespread interest in standardization problems, 33 national trade, technical, scientific, and regulatory organizations are officially cooperating in the work on colors for traffic signals, while 30 organizations were represented on the sectional committee dealing with pipe flanges and fittings.

The organization has worked out a method for the formulation of standards by sectional committees representing the different groups concerned and usually a few outstanding specialists not representing any particular organization. In other cases standards worked out by similar methods are submitted directly to the main committee. The main committee's function is to assure itself that the different groups concerned have been fairly represented in the development of the standard, and then to favor it. Indorsement by the main committee, therefore, means that the standard is approved by its member bodies, which includes 6 departments of the Federal Government, 9 national engineering societies, and 18 national industrial associations.

The standardization projects are divided into certain general groups as follows:

Civil engineering and building trades.—Standards adopted in this group include a number of the specifications of the American Society for Testing Materials; a code of lighting for factories, mills, and other work places, giving the minimum illumination required from the point of view of safety in factories, mills, and other work places; rules for the avoidance of glare; rules for installation of exits and emergency lighting; and suggestions as to values of illumination economically desirable for different classes of work. Under this heading also is a safety code for ladders, sponsored by the American Society of Safety Engineers and the engineering division of the American Safety Council. There is also a code for lighting of school buildings, sponsored by the American Institute of Architects and the Illuminating Engineering Society.

Mechanical engineering.—This includes work with the National Screw Thread Commission, safety codes for the protection of workers in foundries; safety codes for mechanical power transmission apparatus, power presses, and foot and hand presses; and standard screw threads for fire-hose coupling, the latter having been sponsored by the American Society of Mechanical Engineers, the American Water Works Association, and the National Board of Fire Under-

writers. The standard symbols for electrical equipment of buildings were worked out by a group sponsored by the American Institute of Architects, the American Institute of Electrical Engineers, and the International Association of Electragists. Many other projects are under way, including rivets, nuts, bolts, gears, flanges, and screw fittings, all of which are used in the mechanical industries.

Other groups.—Electrical engineering, automotive, transportation, shipbuilding, ferrous metallurgy, nonferrous metallurgy, chemical industry, textile industry, mining, agriculture, wood industry, pulp and paper industry, glass and pottery, and miscellaneous represent other types of standardization work. This last group includes such projects as a safety code for laundries; illuminating engineering nomenclature and photometric standards; a safety code for industrial sanitation, sponsored by the United States Public Health Service; and a ventilation safety code. The committee also cooperates with foreign standardizing bodies.

AMERICAN SOCIETY FOR TESTING MATERIALS

The American Society for Testing Materials is relatively much older, having been founded in 1898. Its formation at this earlier date perhaps accounts for the fact that its membership is individual.

The organization has grown from a membership of 70 in 1898 to 4,000 in 1926. The number of members in attendance at annual meeting has grown to about 800. The purpose of the society is "the promotion of knowledge of the materials of engineering, and the standardization of specifications and the methods of testing." The society functions as a technical group in part of its proceedings at which technical papers are read and discussed.

The society also has committees to study the properties of the various materials and recommend specifications for them. Its 45 standing committees, with a membership of 2,000, and their subcommittees, deal with ferrous and nonferrous metals, cement, lime, gypsum, clay products, and miscellaneous materials. In each standing committee and subcommittee nonproducers of the commodity concerned must comprise at least half the membership to assure consideration for the needs of users and consumers. The reports of the standing committees, which meet two or three times a year, are presented at the annual meetings. The standards of the society deal with specifications designed to govern the selection of materials. Such specifications may or may not include reference to tests but include limits for physical, chemical, or other properties. Recommendations as to standard methods cover methods of testing, analysis, sampling, and similar operations. Standard definitions also come within the scope of the society.

As in the case of the projects of the American Engineering Standards Committee, the data considered by the subcommittees are submitted by technical experts, such as engineers, university testing laboratories, scientists connected with Government departments, and industrial technicians.

Trade associations which maintain research departments are in a position to obtain recognition of their findings in connection with the work of the society. The society is frequently enabled to take action on account of such research activities, as in the case of the committee on gypsum products.

The American Society for Testing Materials works closely with various branches of the Government, with the American Engineering Standards Committee, and other bodies. Its specifications for building materials are often referred to in municipal building codes and thereby receive legal recognition. The standards promulgated by the society deal with such varied subjects as specifications and tests for Portland cement, iron and steel products, methods for assay or analysis of many metal products, specifications for various types of paint and methods of testing them, road materials, coal and coke, timber and timber preservation, waterproofing, insulating materials, rubber products (including cotton rubber-lined fire hose), air hose for use with pneumatic tools, rubber pump valves, adhesive tape for general use in electrical purposes, textiles for cord tire fabrics, electrical cotton yarns, cement sacks, and thermometers. Much of the initiative in the American Society for Testing Materials comes from consumer groups, and it is frequently through trade associations that projects are called into being. A committee in operation functions in the same way, whether there are trade associations taking a particular interest in the problem or not. But procedure is simplified where trade associations are able to speak for the groups concerned, and especially when they have undertaken or otherwise promoted research work which facilitates conclusions.

AMERICAN ENGINEERING COUNCIL

The American Engineering Council is an organization composed of national, State, and local engineering societies. Among its membership are the American Society of Mechanical Engineers, the American Institute of Electrical Engineers and 24 other engineering societies. The member societies have a total membership of 42,000. The member bodies govern the council's operations through prorated representation on the assembly of the American Engineering Council and its administrative board. The activities of the council are financed by prorated contributions by its members and by special donations.

The council functions for the purpose of furthering the public welfare wherever technical and engineering knowledge and experience are involved, and to consider and act upon matters of common concern to the engineering and allied technical professions.

The principal activities of the council may be divided into three main groups having to do with (1) national legislation, (2) research problems, and (3) engineering and industrial projects in which the council cooperates with governmental and other agencies. In the matter of national legislation, it has directed the effort for a complete topographic map of the country, a complete inventory of its water resources, a unified control and direction of the public works functions of the Federal Government, and the establishment of a national hydraulic laboratory. It has also taken a prominent part in reforestation work, improvement of the Patent Office, study of the Muscle Shoals and other power problems, radio legislation, and many other engineering problems of national importance.

It has prepared and published reports on waste in industry, the twelve-hour shift in industry, industrial coal, and civil aviation, the latter jointly with the Department of Commerce. It has in preparation a report on safety and production, and another on traffic signs, signals, and markings.

The American Engineering Council has cooperated with other agencies in such activities as the Conference on Street and Highway Safety, the uniform mechanics' lien act, the work of the National Board for Jurisdictional Awards in the Building Industry, and in securing engineer officers for the Ordnance Reserve Corps, and has assisted many of the executive departments of the Federal Government with their engineering problems.

ENGINEERING SOCIETIES

The American Society of Mechanical Engineers with 17,500 members, the American Society of Civil Engineers with 11,275 members, the American Institute of Mining and Metallurgical Engineers with 9,000 members, and groups of engineers specializing in refrigeration, safety, sanitation, illumination, radio, and other matters, are concerned with problems affecting the entire range of industry and a large number of public and civic affairs. These groups discuss many of the technical problems of industry, distribution, and transportation at their meetings and in their publications. A number of them carry on research activities, and some have special sections devoted to particular industries. They constitute an important factor in all programs for simplification and standardization where the specification and determination of sizes of commodities lie within the discretion of engineers. The American Society of Civil Engineers has divisions relating to construction and to city planning.

MISCELLANEOUS PROFESSIONAL BODIES

The cooperation of the American Institute of Architects in matters affecting the building industry has already been discussed in Chapter XIV.

The American Medical Association and the American Public Health Association frequently cooperate in matters relating to industrial hygiene and sanitary problems.

The National Education Association, with its departments of superintendence and teaching, has contact with the school system of the country.

NATIONAL SAFETY COUNCIL

The National Safety Council is an association of companies and individuals interested in promoting safety in industrial establishments and also on the streets, in the schools, and in homes. The council serves to bring together individuals and groups interested in the promotion of safety, and it already has some 20 sections of specialized industries and fields, including the following: Engineering, public safety, education and health service, automotive, cement, chemical construction, electric railway, ice and refrigeration, marine, metals, mining, packers and tanners, petroleum, public utilities, quarries, rubber, steam railroads, taxicab and delivery service, textile, and woodworking. This association has assisted in the formulation of 34 of the national standard safety codes. It issues a safety calendar, and the monthly National Safety News, as well as posters, pamphlets for special industries, and outlines of lectures for instruction to foremen and safety supervisors in safety methods. The council compiles and publishes statistics relating to industrial accidents. In a number of cases its sections take the place in large part of what might otherwise be a division of safety of a trade association. The safety problems of every industry, however, are individual to a certain degree, and it is for each trade association to determine the policy of the industry with regard to safety measures and the degree of cooperation with the council.

NATIONAL RESEARCH COUNCIL

In the field of scientific research the National Research Council serves as a clearing house of information in regard to research work undertaken throughout the country. Its division of engineering and industrial research coordinates the scientific resources of the country as regards engineering and secures the cooperation of engineering agencies in which research facilities are available. It works in cooperation with the Engineering Foundation and the various

national engineering societies. Individuals or associations undertaking research may, by consulting the council, find out what work has been undertaken or is in progress along similar or allied lines, thus avoiding duplication of effort.

NATIONAL CONFERENCE ON UNIFORM STATE LAWS

Industries interested in uniformity of State laws cooperate with the National Conference of Commissioners on Uniform State Laws. This body is composed of representatives of the various States and Territories, most of them appointed officially. It meets each summer during the week preceding the meeting of the American Bar Association, and its recommendations are usually indorsed by that organization. An act to be indorsed by the conference must have been considered in preliminary form at least one year before final adoption.

Promulgation of a law by the conference means that it considers the law well drafted from a legal point of view and sound in principle. The greatest success has been with the uniform negotiable instruments act, which was originally promulgated in 1896 and which has now been adopted in 51 jurisdictions of the United States. The adoption of this measure was advocated by the American Bankers' Association and the State bodies affiliated with it, as well as by other national organizations. A uniform warehouse receipts act which was promulgated in 1896 has been adopted in 48 jurisdictions. The American Warehousemen's Association actively supported its passage before the different legislatures. The uniform bill of lading act has been adopted in 26 States since 1909 and the stock transfer act in 17 States within the same period. The uniform sales act is in effect in 27 States.

When the committee on standard State mechanics' lien act was formed in the Department of Commerce, the chairman of the National Conference on Uniform State Laws appointed a committee of the conference to consider the same subject and nominated the chairman of this special committee to serve on the Department of Commerce committee. There was similar cooperation between the conference and the National Conference on Street and Highway Traffic Safety, which indorsed the uniform motor vehicle act. Laws more recently promulgated by the conference include a uniform firearms act regulating the sale and possession of small arms and a uniform chattel mortgage act.

There has already been sufficient experience in the framing of uniform State laws and local ordinances to demonstrate the fact that to have general confidence and to receive public support, the leading groups concerned, including the public, should be represented during the process of drafting. Indorsement of the act by trade associa-

tions or by other responsible bodies which are able to consider it in detail with relation to the interests of its members is most helpful. An act framed by a single group sometimes arouses suspicion on the part of other groups affected—no matter how well it may be drawn—simply because they have not been consulted.

AMERICAN ARBITRATION ASSOCIATION

The American Arbitration Association acts as a clearing house for all groups interested in extending the practice of commercial arbitration. It maintains an up-to-date record of provisions regarding arbitration which are used in different branches of industry and commerce, and is otherwise ready to assist associations which wish to establish arbitration as a principle in the dealings of its members.

NATIONAL ASSOCIATION OF CREDIT MEN

The National Association of Credit Men, with more than 30,000 members, includes the officials of banks and businesses who are in charge of granting credit to business men. Its primary function is to enable credit officers of banks and businesses to exchange information on the performance of business men in meeting their financial obligations. To this end it has local branches in a large number of cities and national and local subdivisions for various lines of business. Through its activities it is often able to reduce bankruptcy losses.

It also provides machinery by which, in case of failure or threatened failure, creditors may pool their interests and take the action which seems best suited to relieve an insolvent firm from its difficulties, if they appear to be of a temporary nature, and if its affairs can be straightened out without going through bankruptcy. United action on the part of creditors also helps to assure prompt and effective action in the interest of creditors even where bankruptcy is necessary.

NATIONAL ASSOCIATION OF PURCHASING AGENTS

The National Association of Purchasing Agents, with a membership of 4,400, includes a number of branches devoted to specialized industries or lines of purchasing. This association has adopted a set of principles and standards for the guidance of members and others in business practice. It collects information on the market trends of various commodities for the benefit of buyers. It has engaged in a number of studies in statistical research, including one on the amount of coal on hand and consumed in industry. The association does not carry on any credit and collection service, but gathers information relating to the reliability of vendors and their ability to carry out contracts which they propose to undertake. It has made a

definite effort to aid municipalities, counties, States, and the Federal Government in improving their purchasing methods and furnishes market analyses to members on request. In the field of industrial research it is often called upon to help find substitute commodities to accomplish the same or better results for the same or lower cost. The association has cooperated with the division of simplified practice of the Department of Commerce in many of its recommendations, including those for standard forms. It reports working with 8 colleges and 14 Y. M. C. A.'s, all in different cities, in which courses in purchasing are being given. A two-year course was begun in 1926, and it is intended to expand this later to four years.

NATIONAL ASSOCIATION OF COST ACCOUNTANTS

The National Association of Cost Accountants, with 3,500 members, is the largest body of its type, although there are several organizations of accountants.

THE ASSOCIATED ADVERTISING CLUBS OF THE WORLD

The Associated Advertising Clubs of the World, representing an individual membership of 30,000, is the coordinating agency in its field, representing those with products to advertise and sell, advertising agencies, and various classes of advertising mediums, such as newspapers, business papers, billboards, and direct mail advertising.

THE ASSOCIATED TRAFFIC CLUBS OF AMERICA

The Associated Traffic Clubs of America, representing a membership of some 20,000, has affiliated with it traffic clubs in cities throughout the United States.

THE UNITED STATES CHAMBER OF COMMERCE

The United States Chamber of Commerce is a federation of local chambers of commerce, boards of trade, and similar bodies representing the general business and allied interests of cities throughout the country and a considerable number of national trade associations. It has departments devoted to transportation and communication, manufacture, natural resources production, domestic distribution, foreign trade, finance, insurance, and civic development. In addition, it has a referendum department for obtaining the views of member bodies on various questions of national policy, and departments devoted to research, editorial, and field work. Through these departments it is able to render informational and research service to practically all the business groups of the country and to local bodies. Furthermore, it is able to act as an intermediary in the solution of problems affecting two or more business groups.

It maintains a national legislative information service, a monthly periodical, The Nation's Business, with a circulation of a quarter of a million, and issues many specialized bulletins. Among examples of its work may be mentioned the National Transportation Conference held in 1924 and the National Distribution Conference held in 1926. At the transportation conference reports of committees on railway, waterway, ocean shipping, and highway transportation were presented. As an outgrowth of these reports a referendum was held to determine the attitude of the business men of the country with regard to the theory of rate making and other underlying principles of the transportation act of 1920. The scope of the work of the National Distribution Conference is best comprehended from the designations of the more important committees—collection of business figures; trade relations, market analysis, and advertising; expenses of doing business; methods of distribution and general conditions affecting distribution.

The department of manufactures is represented at simplification and standardization conferences held at the Department of Commerce. The natural resources department makes a particular study of questions relating to control of mineral resources by the Federal Government. The civic development department furnishes local bodies with information on the requisites of good school systems and with information on city planning, zoning, regulation of billboards, and other matters affecting civic betterment. It also studies immigration and the effect of immigration laws and proposed bills relating to immigration on the industrial needs of the country.

The insurance department supervises an intercity fire-prevention contest each year, awarding prizes to cities showing the lowest fire losses among various groups, classified by population. A staff of more than 300 is employed under direction of the executive board, board of directors, committees assigned to the different departments, and special committees appointed from time to time.

APPENDIX

GOVERNMENT RELATIONS

The importance which trade associations attach to Government relations is shown by the fact that several score of these associations maintain representatives at Washington and that representatives of one or more trade associations appear at congressional committee hearings on practically all important bills affecting business directly or indirectly. Consideration of pending legislation by trade associations assures careful scrutiny from the point of view of the business men in that particular group, and affords a medium for presenting their views to the proper committee of Congress.

In many cases trade associations are concerned primarily with the relations of administrative agencies, such as the Interstate Commerce Commission, the Bureau of Chemistry (Department of Agriculture), which enforces the food and drug act, and the departments concerned in administering the national bank acts. In other cases the major interest of the trade associations is with the research and service branches of the Government, such as those maintained in the Department of Commerce and the Department of Agriculture.

In all three fields—legislation, administration, and research service—trade associations are furnishing daily contacts between business and the National Government. Similar contacts with State and municipal governments on the part of State and local branches of trade associations are growing and are of great importance in the country as a whole in harmonizing the interests of business, the public, and governmental bodies.

The Federal Government includes 10 executive departments of Cabinet importance, their many component bureaus, boards, divisions, and offices, and over two score independent boards, commissions, and other separate agencies.

In order to make clear to trade association executives the cooperative functions and activities of the Federal Government, the following brief descriptions are presented. Each department is anxious to be of service to the business community wherever possible.

DEPARTMENT OF STATE

The Department of State does not have regular or continued cooperative relations with trade associations, but frequent contact be-

tween such associations and the Department of State exists, and the department performs certain specific functions that are of considerable importance to these associations.

DIPLOMATIC AND CONSULAR SERVICE

The Department of State, with its diplomatic missions and consular offices abroad, is in one sense an information-gathering agency which procures data of value to trade associations and their members regarding conditions in foreign countries. Consular reports on economic and financial conditions are not disseminated directly by the Department of State, but are communicated to the Department of Commerce, which is charged with dissemination of information regarding conditions abroad.

At appropriate meetings of trade associations the department endeavors to be represented by consuls and other officers, and the contacts formed at such gatherings are mutually advantageous. Officers of the department are frequently called upon to confer informally with representatives of trade associations and are always anxious to give such advice and assistance as they properly can to meet the requirements of American business.

The Department of State is of service to American trade associations in promoting and protecting the interests of their members in foreign countries. The important bearing of actions by foreign governments upon the interests of Americans abroad is obvious, and it is frequently necessary that questions affecting American interests be taken up with the respective foreign governments. The Department of State, as the agency charged by law with dealing with foreign governments and international situations, is therefore the agency to which American business interests necessarily look when they encounter difficulties abroad, such as discriminations, arbitrary rulings, and other obstacles. It is a fundamental policy of the Department of State to maintain the open door for American intercourse abroad, to seek equality of opportunity for American citizens without discrimination, and to do what it properly can to assist in preserving valid rights duly acquired.

DEPARTMENT OF THE TREASURY

Several of the fiscal bureaus and offices of the Treasury are in close cooperation with trade associations in the pursuit of their official duties. Among these are the following:

BUREAU OF INTERNAL REVENUE

Several trade associations, through their representatives in Washington, are in almost daily contact with the Bureau of Internal

Revenue. The representatives of these associations, who are interested in every phase of tax legislation and procedure which affects the interests of the association membership, are helpful to the bureau as well as to their members in disseminating information regarding the latest rulings and regulations in connection with tax matters.

The statistical information compiled in the bureau and made available monthly to trade associations is as follows:

1. A comparative statement showing quantities of the following tax-paid manufactured products, as indicated by monthly stamp sales: Distilled spirits (nonbeverage); spirits or wines, rectified; cigars, large; cigars, small; cigarettes, large; cigarettes, small; snuff, manufactured; tobacco, manufactured; oleomargarine, colored; oleomargarine, uncolored; and playing cards.

2. A comparative statement of internal revenue receipts from admissions to theaters and other places of amusement; manufacturers' excise taxes on automobiles and motor cycles, and cereal beverages; stamp taxes (documentary, etc.), including the tax on playing cards; taxes on cigars, cigarettes, snuff, and manufactured tobacco; and taxes on colored and uncolored oleomargarine.

To representatives of the press are issued monthly comparative statements of all internal-revenue collections.

The annual report of the bureau contains statistical tables relating to all internal-revenue receipts and production of tax-paid manufactured products.

PUBLIC HEALTH SERVICE

The following industrial activities of the United States Public Health Service have proved of interest to certain trade associations:

DUSTY TRADES

Investigations have been made in those industries in which different kinds of dusts represent an occupational hazard. Four of these studies have been completed. These are surveys relating to cement dust, granite dust, hard-coal dust, and silver polishing. There are still three groups under observation which will provide the basis of surveys of soft coal, vegetable, and municipal dusts.

These studies have been made in a similar manner, so that the data obtained are comparable. The procedure consists of a health study of a group of 500 to 1,000 workers exposed to the dust; a complete physical examination with special attention to the chest, followed by an X ray in any case where there is a suspicion of a chronic chest condition or disease; a study of the physical and chemical properties of the dust to which the workers are exposed; and an investigation of the causes of absence, extending over a period of two years.

ILLUMINATION OF BUILDINGS

Observations have been carried on for the past two years at the Chicago post office, where approximately 30 letter separators have been working under different degrees of illumination, varying from 2 to 25 foot-candles. In this study an attempt has been made to determine not only the effect of illumination on production, but also to discover if changes in illumination have any effect on the speed of vision, the acuity of vision and fatigue of the eye.

The ascertaining of these fundamental facts has important bearings on the construction of public buildings, schools, and factories, where artificial light is used.

MOTOR FUELS

As a result of public demand upon the United States Public Health Service to ascertain whether or not there exists a health hazard in the use and distribution of ethyl gasoline, the Surgeon General appointed a committee of seven of the leading scientists of the country.

A study was made by the Public Health Service of 252 male workers, part of whom had been engaged in work in garages and filling stations where ethyl gasoline had been in use for over two years. The remainder of the group had not been exposed to this gasoline.

The committee concluded:

1. That drivers of cars using ethyl gasoline as fuel where the concentration of tetraethyl lead was not greater than 1 part to 1,300 parts per volume of gasoline showed no definite signs of lead absorption.

2. Employees of garages and service stations may show evidence of lead absorption and storage, and in garages and service stations where ethyl gasoline is used, the amount of apparent absorption and storage may be increased, but for the period of exposure studied, this was not sufficient to cause detectable symptoms of lead poisoning.

INDUSTRIAL MORBIDITY

The cause of industrial absenteeism have been obtained from three general sources:

1. A group of 35 sick benefit associations with a combined membership of approximately 135,000 industrial employees.

2. Medical departments of several large industrial establishments.

3. Sickness records collected by the United States Public Health Service.

A five-year study of disability among 135,000 industrial employees absent on account of sickness for eight days or longer has indicated

the importance of the respiratory group of diseases in causing lost time from work.

Influenza and grippe accounted for 18 per cent of all sickness claims and these diseases disabled industrial employees at a rate which was six and six-tenths times the frequency of the epidemic, endemic, and infectious diseases against which public health work is so largely directed.

PRONE PRESSURE METHOD OF RESUSCITATION

After two years of effort an agreement has been reached as to the standard technique of the prone pressure method of resuscitation.

Approval of the standard method has been given by the United States Public Health Service, American Red Cross, Bureau of Mines, Association of Industrial Physicians and Surgeons, National Electric Light Association, American Gas Association, National Safety Council, United States Army, United States Navy, and the Bureau of Standards.

The effect of such standardization in the technique of the prone pressure method of resuscitation should be far-reaching and beneficial, especially in those industries, Government departments, and organizations where gas poisoning, electrical shock, or the danger of drowning forms an important problem.

SANITARY CONTROL OF SHELLFISH

This activity is for the purpose of insuring, as far as practicable, the sanitary safety of shellfish which undergo interstate shipment, and is conducted in cooperation with the Bureau of Chemistry of the Department of Agriculture, the Bureau of Fisheries of the Department of Commerce, and various State departments of public health and conservation commissions. The cooperation of the various associations in the shellfish industry and of individual dealers is also freely given and is an important factor in the effectiveness of the work.

The Public Health Service considers that the responsibility for the sanitary control of the shellfish industry rests chiefly upon the individual States and that each State is directly responsible for the effective regulation of all production and handling of shellfish within its confines, not merely for the protection of its own citizens, but equally for safeguarding such of its product as goes to other States; and that each producing State should recognize its responsibility for the safety of the shellfish shipped into other States by issuing a certificate covering the product.

In order that each State may have full information concerning the measures carried out in other States the Public Health Service undertakes systematic surveys of the machinery and efficiency of

sanitary control as actually established in each producing State and reports thereon for the information of the authorities of other States. Such reports include not merely a summary of facts but also an expression of opinion as to whether the control exercised is actually efficient and reliable.

Those officers of the Public Health Service who are assigned to this survey work assist the State agencies in determining their sanitary problems, in formulating plans for adequate sanitary control, and in making actual sanitary surveys as far as practicable.

In accordance with a cooperative agreement between the Public Health Service and the Bureau of Chemistry, the Public Health Service furnishes the Bureau of Chemistry with information regarding insanitary shucking houses and shellfish-growing areas in order that interstate shipments may be dealt with as heretofore under the Federal pure food and drugs act.

In addition to the above, the Public Health Service conducts scientific investigations of fundamental importance to control and serves as a clearing house for the interchange of information and the discussion of policies between State authorities.

WATER SUPPLIES USED BY COMMON CARRIERS

The supervision of water supplies used by common carriers insures safe drinking and culinary water on trains and vessels engaged in interstate traffic and is conducted in cooperation with State departments of health and representatives of the railroad and steamship companies. Inspections are made of sources of supply, methods of handling, and equipment used for storing and delivering the water. Through a system of certification the sanitary quality of water used on common carriers has been greatly improved.

CUSTOMS SERVICE

The practices and procedure applicable to the administration of the customs laws, with which the Customs Service is charged under authority of the Department of the Treasury, are set forth from time to time, as circumstances require, in the weekly issue of Treasury Decisions. In the event that trade associations or individuals who desire changes in such practices or procedure, actual or in contemplation, should indicate their desire, they are given full opportunity to present their views orally or in writing, or both, to the chief of the division. The additional facts which they may present and their point of view are given thorough consideration, and, if warranted under the law, the practices and procedure are modified accordingly. For example, recent hearings have been given to trade associations interested in the production and importation of sugar, the production and importation of wool, and in the manufacture of artificial silk.

DEPARTMENT OF WAR

The requirements of the Army in time of peace are small in comparison with the regular commercial requirements; nevertheless the current disbursements for supplies for the Military Establishment amount to approximately $70,000,000 annually. In time of war the demands of the Military Establishment are enormous, and success depends largely upon the prompt, efficient, and economical diversion of industry from peace production to war production. Army supplies are purchased through the following: The Quartermaster Corps, the Ordnance Department, the Signal Corps, the Corps of Engineers, the Air Service, the Chemical Warfare Service, and the Medical Department.

It will be seen that the Army in time of war will make demands on almost every line of industry, and the cooperation of trade associations will be vital to insure success. Several hundred of these associations have already offered to assist the War Department in connection with its procurement plans. As those plans develop, it is hoped to establish contact ultimately with every association which can help in this task. For detailed information along these lines, trade executives should address the Procurement Division, Office of the Assistant Secretary of War.

DEPARTMENT OF THE NAVY

The organization of the Navy Department has been built up with the primary mission of serving the fleet. At the head of the Navy Department is the Secretary of the Navy, whose office handles all matters of broad Navy policy. The Assistant Secretary of the Navy has under him all navy yards and matters pertaining thereto.

The needs of the Navy cover a multiplicity of commodities—for the personnel of the Navy, food, clothing, medicine; for materials, all that goes into a battleship, a submarine, or an airplane. In general, all purchases are made by the purchasing division of the Bureau of Supplies and Accounts, though preliminary negotiations are made through the bureaus directly concerned. The Bureau of Supplies and Accounts publishes a book which gives in catalogue form a list of the articles in which the Navy is interested with a view to purchase. This may be had on application to the Bureau of Supplies and Accounts. Though the Navy purchases many articles of standard manufacture and endeavors to confine its purchases to such articles, by reason of the very special needs of ships in all climes and from the fact that naval equipment is exposed to all weathers and temperatures, it is necessary that certain peculiar specifications be laid down for some of its supplies.

The Navy has undoubtedly been of permanent assistance to American industry by reason of these special requirements. The Bureau of Medicine and Surgery has effected wide changes in the preparation of remedies for use on board both merchant and war ships, and the Bureau of Ordnance has been the means of developing high-grade steels and optical instruments of high quality in this country. At present the United States is self-sustaining, in so far as the equipment of its ships is concerned, by reason of the insistence of these bureaus of the Navy in requiring compliance with certain specifications in Navy supplies and by aid to special industries at critical times. Special instances are given as follows: Surgical instruments; optical glass; certain pharmaceutical preparations; the building of docks in coral and problems pertaining thereto; the development of machinery for handling large weights; the development of radio (due in great part to the efforts of the Bureau of Engineering); the development of the turbine and electric drive; telemotors; the substitution of fir for oak in containers; and the development of many special metals heretofore impossible to secure in this country.

The Navy's demand for supplies and its methods of purchasing have helped trade associations in their dealings with the commercial world in the line of standardization of materials and containers.

Among the many materials for which the Navy has materially assisted in the improvement of standards are typewriters; canvas; rope; brass, bronze, and steel; linoleum (battleship linoleum is now the highest commercial standard); storage batteries; provisions (canned fruits, sugar, and flour); paint, varnish, and oils; drums, boxes, and other containers.

The Panama Canal adopted the Navy specifications as standards with the beginning of its work and has closely followed the revisions and additions since made. Many manufacturers are using Navy specifications in their manufacturing processes, using them as standards for their entire production. Requests from manufacturers to reprint Navy specifications for their manufacturing department are not infrequent. For example, one of the largest steel rolling mills requested a list of specifications involving over 600 different items.

The Navy Department leaflet specifications are now found in many public libraries, also in colleges and in the libraries of large corporations. State institutions and city government authorities frequently ask to be supplied. The Navy specifications are generally recognized as fixing a high standard of quality—a quality and a form particularly suitable for foreign shipment and successful in meeting competition in foreign trade.

POST OFFICE DEPARTMENT

As an instrument of trade and industry, the Post Office Department provides a medium for the exchange of ideas and is the carrier of news and knowledge. Through its money-order system it provides a means for the payment of debts and the purchase of commodities. The Parcel Post System—the biggest parcel-carrying business in the world—permits sending the products of agriculture and of industry to all the civilized regions of the earth. Its insurance features provide for the protection of these parcels in transit, and the C. O. D. privileges allow them to be sent collect on delivery, while the registry provision provides for receipt of delivery.

The Post Office Department also aids in ridding the system of waste through misdirected mail and advises heavy mailers of the most modern mail-room methods and labor-saving devices. Postmasters are authorized to furnish clerks at a nominal charge of 60 cents an hour to revise mailing lists and bring up to date the mailing methods of the larger users of the mails.

The department's educational program for cooperation includes suggestions for keeping posted on mail schedules: early dispatch of the mail to make the most advantageous connections; the use of firm mailing sheets, prepared by the department, in presenting quantities of parcels for insurance or C. O. D.; the filing of indemnity claims for lost insured mail within the specified period of six months; the proper wrapping and tying of fragile articles: and last, but not least, the check used to insure correct addressing.

Direct contact with trade and commercial organizations is made at conference conventions of postal employees held in each State, in which large mailers are invited to participate actively and bring up discussions of mailing problems. Local postmasters are instructed to furnish information regarding the Postal Service and, as local representatives of the Post Office Department, are charged with the duty of cooperating with the patrons of the mail service.

DEPARTMENT OF THE INTERIOR

The Department of the Interior through several of its branches has very intimate contact with some trade associations, while in other branches no such contact exists.

RECLAMATION SERVICE

Since the establishment of the Reclamation Service there has been considerable cooperative activity between that service and various associations in regard to many phases of irrigation development. Among these are various State, county, township, and municipal

organizations, also semiofficial bodies such as water users' associations, irrigation districts, and community centers. Furthermore, cooperation has existed between the Reclamation Service and civic and trade organizations of all kinds, including national, State, and local business associations, granges, and women's clubs, and particularly with organizations for the betterment of farming conditions and for the sale and distribution of farm products.

The service has been cooperating with civic organizations, irrigation district societies, and water users' associations on irrigation projects, as well as with railroads, in making motion pictures which are utilized in connection with colonizing the reclaimed lands and promoting better methods of farming. The cost of making the films is borne by these organizations and their circulation is directed by the Reclamation Service.

NATIONAL PARK SERVICE

The National Park Service was established to promote and regulate the use of the national parks and national monuments placed under its administration. In promoting the use of these Federal areas the service has had and is receiving the cooperation of such trade associations as are primarily interested in promoting travel.

Cooperative activities are confined to furnishing annually such trade or travel associations with information, pamphlets, and maps of the national parks. Pamphlets and maps furnished are placed by such associations in the hands of persons planning or making national-park trips.

These cooperative activities are revealed in the increased travel to the national parks, which has become an important economic factor in our national life. Park travel has made tremendous gains in the last few years, having increased from 451,661 visitors in 1918 to 1,930,865 in 1926.

DEPARTMENT OF AGRICULTURE

Several bureaus of the Department of Agriculture are engaged in activities of much specific interest and usefulness to trade associations.

WEATHER BUREAU

The Weather Bureau issues forecasts and warnings of storms, cold waves, frosts, heavy snows, and river movements or floods; issues reports on observations of the relations of the weather to the seeding of crops and the conditions of growth or harvesting; and compiles and analyzes data relative to distribution and variation of

rainfall, the distribution and frequency of hail, and the extent and frequency of droughts. Cold waves and frosts are forecast as an aid to horticultural interests in providing for the protection of fruit.

BUREAU OF ANIMAL INDUSTRY

The Bureau of Animal Industry inspects the meat produced at all establishments which slaughter animals for interstate shipment and for export; inspects the processing of butter; regulates the preparation, sale, barter, exchange, or shipment of any virus, serum, toxin, or analogous products manufactured in the United States or imported for use in the treatment of domestic animals; supervises and regulates the importation of live animals; conducts scientific investigations in diseases of animals: and undertakes to eradicate or control diseases of livestock.

BUREAU OF PLANT INDUSTRY

The Bureau of Plant Industry investigates diseases of forests, ornamental trees, and shrubs, diseases of orchard and other fruits and all other crops, and investigates and applies methods for eradication or control of destructive diseases, such as the white-pine blister rust, citrus canker, and the black stem rust of wheat.

FOREST SERVICE

The Forest Service, in addition to having general supervision of the national forests, investigates and applies methods of reforestation and of increasing the productivity of forests; investigates and tests timber, timber trees, and their uses, including tests of woods to ascertain their suitability for making paper; investigates and develops methods for wood distillation and for the preservative treatment of timber; and conducts experiments to promote economy in the use of forest and fiber products and to improve methods or processes.

BUREAU OF CHEMISTRY

The Bureau of Chemistry administers the food and drug act, which is designed to prevent the manufacture, sale, or transportation of adulterated, misbranded, poisonous, or deleterious foods, drugs, and medicines; investigates the character of the chemical and physical tests which are applied to American food products in foreign countries, and inspects before shipment, when desired by the shippers or owners, food products intended for countries where chemical and physical tests are required before the products are allowed to be sold; inspects grading, handling, weighing, transportation,

and uses of naval stores and processes of preparing naval stores; investigates and develops methods of manufacturing insecticides and fungicides, also methods of dehydrating materials used for food; and investigates and develops methods for the prevention of grain-dust, smut-dust, and other plant-dust explosions and resulting fires.

BUREAU OF ENTOMOLOGY

The Bureau of Entomology investigates the history and the habits of insects injurious or beneficial to agriculture, horticulture, and arboriculture, and of insects affecting the health of man and domestic animals. It also investigates and develops methods of destroying injurious insects and of preventing and combating infestations of such insects.

BUREAU OF PUBLIC ROADS

The Bureau of Public Roads investigates methods of road making, the use of materials in road making, the utilization of water in farm irrigation, methods of irrigating and draining, construction of farm buildings, and other rural engineering problems involving mechanical principles; supervises the preparation, distribution, and use of picric acid, trinitrotoluol, and such other surplus war explosives as may be made available for use in clearing stumps and stones from agricultural lands.

BUREAU OF AGRICULTURAL ECONOMICS

The Bureau of Agricultural Economics investigates and encourages the adoption of improved methods of farm management and farm practice; investigates the cost of production and cost of marketing; investigates methods of marketing, handling, utilizing, grading, transporting, and distributing farm and nonmanufactured food products; investigates, establishes, demonstrates, and promotes the use of uniform grades and standards for farm products; inspects and certifies grade and quality or condition of fruits, vegetables, butter, and hay; enforces the standard container act, which prescribes standard containers for fruits and vegetables; collects, publishes, and distributes information on the area of crops seeded, conditions of the growing crops, forecasts and estimates of production of crops, estimates of the number of livestock on farms, and prices paid to producers; prepares information on the movement and prices of fruits and vegetables, dairy and poultry products, livestock, wool, and meats, hay, feed, and seed, and on storage holdings of poultry, dairy products, lard, meat, apples, and fish; administers the grain standards act, establishing standards, inspection, and supervision of

the grading of grains at principal receiving and export points; administers and enforces the cotton futures act, establishing official cotton standards and classing cotton for future delivery at New York and New Orleans; and administers the United States warehouse act.

FEDERAL HORTICULTURAL BOARD

The Federal Horticultural Board regulates the importation of nursery stock and other plants and plant products to prevent the importation of plant diseases and insect pests, and regulates the movement of fruits, plants, and vegetables from districts that have been quarantined on account of diseases and insect pests.

DEPARTMENT OF LABOR

BUREAU OF LABOR STATISTICS

The principal lines of cooperation with trade associations so far established by the Department of Labor are through the Bureau of Labor Statistics and consist in securing sympathetic contact with individual establishments through indorsement of specific work of the bureau which is of interest to such associations. The investigation of wages, hours, and efficiency of labor in the brick industry, for instance, was taken up with the National Common Brick Manufacturers' Association, and the Bureau of Labor Statistics plans and purposes were indorsed, or at least agreed to, by the association officials, who furnished the bureau with a list of brick-manufacturing establishments making the kind of brick desired, in quantities sufficient to make such establishments worth scheduling by the bureau. In its revision of wholesale prices of sand and gravel for building purposes the bureau would probably have been unable to segregate its units sufficiently and secure the cooperation of individual producers except for the cooperation of national trade associations.

The Bureau of Labor Statistics does not accept data from industrial trade associations. In every case its information as to wages and prices must be taken from the books of individual establishments. Hence the only way in which associations can be of service to the bureau is by opening the way for sympathetic consideration of the subjects by their individual members. In a few instances the bureau has been offered industrial statistics obtained by and through trade associations, but in each case it has been necessary to decline them, except in cases of wage scales made between a large employers' association or groups of such associations with district trade-unions, or, in some cases, even national trade-unions; as, for instance, the National Stove Manufacturers' Association concluded a wage scale for all of its members with the National Iron

Molders' Union covering all the members of that organization working in the stove trade. It is immaterial to the Bureau of Labor Statistics in such cases whether the scales come to it through the employers' organization or through the workers' union. In general, the cooperation so far established, as indicated above, simply consists of using an association to establish friendly relations with its individual members.

EMPLOYMENT SERVICE

The employment service has certain contacts with local chambers of commerce and local employers' associations, principally for the purpose of securing information as to opportunities for employment, alleviation of labor shortage, and other unfavorable labor conditions. Thus far it has made no connections with national trade associations.

WOMAN'S BUREAU

The Woman's Bureau likewise consults local chambers of commerce and local employers' associations in making selection of establishments for investigatory work. The Woman's Bureau has in contemplation a very extensive inquiry among individual woman workers and plans to have representatives of trade associations on an advisory committee.

UNITED STATES TARIFF COMMISSION

The activities of the United States Tariff Commission, as specified in its organic act, are confined to gathering facts relating to the domestic and foreign aspects of the tariff and to reporting those facts to Congress, the President, or certain specific committees of Congress. The commission has compiled a comprehensive body of information on practically all the commodities specified in the tariff law and on commercial treaties, preferential tariff arrangements, and other matters of international commercial policy. It is not primarily a service bureau for the dissemination of such information, having been created for the purpose of assisting Congress and the President in the performance of their constitutional duties.

The commission, however, is glad to make available, to the industries interested, such nonconfidential information as it has gathered, and the commission has frequently availed itself of opportunities to cooperate with the appropriate trade associations in the solution of particular industrial and commercial problems connected with the tariff.

The duties of the Tariff Commission have been greatly enlarged by the tariff act of 1922, action of the President under certain sections to be based upon investigations made by the commission. The Presi-

dent, by Executive order, has directed that all applications under certain sections be filed with or referred to the Tariff Commission. Obviously, in the performance of this new duty the commission will welcome close cooperation with the various economic groups in the country interested in the tariff.

FEDERAL TRADE COMMISSION

The "trade practice submittal" is probably the chief cooperative activity on the part of the Federal Trade Commission with trade associations. The procedure was instituted by the commission in 1917 as an instrument to assist the proceedings provided by the statute for the elimination of unfair methods of competition. It had its origin in an effort to eliminate, simultaneously and by the consent of those engaged in a given industry, practices which, in the opinion of the industry as a whole, are unfair. The trade submits its trade practices to the commission for the commission's information. It is employed in cases where a large number of complaints come to the commission, usually from persons in the industry, respecting a number of alleged unfair practices generally prevalent in the industry, or respecting some practice which, although of ancient and widespread usage in the trade, is questioned. In such instances the commission has at times felt that a single proceeding might not present all the facts, or that a single order, restraining as it would but a single concern, might tend to be harmful rather than corrective.

In such a situation the commission, therefore, may invite representatives of the entire industry to meet with it and discuss frankly and fully all practices which the members of the trade may have questioned. The commission itself makes no decisions or ruling, but requests the members of the trade, out of their experience and technical knowledge, to put into concrete form their conclusions respecting such practices as they regard as unfair. This the commission takes for its informative value, but does not regard itself bound thereby. This procedure has been employed by the commission both on its own initiative and at the request of the industries affected.

Trade practice submittals have been made thus far in the following industries: Creamery, rebuilt typewriter, pyroxylin plastic (celluloid), macaroni, knit goods, ink, paper, oil, hosiery, silverware, and gold knives.

It is the policy of the commission not to pass upon abstract questions but to base its rulings upon concrete cases as they arise. These are published and collected in book form. In this way the commission is rapidly building up a body of business law for the advice, definite guidance, and information of American business.

FEDERAL RESERVE BOARD

The Federal Reserve Board and Federal reserve banks have established relations with trade associations in many varied lines and in all sections of the United States. The nature of these relations differs widely in individual instances. In some cases the board of one of the reserve banks has developed cooperation in collecting and compiling trade statistics; in other cases the association furnishes the Federal reserve system with regular monthly statistics; and in still other cases the association merely provides current information concerning general conditions in its industry.

It is in the collection of wholesale and retail trade statistics that cooperation between the Federal Reserve Board and banks and trade associations has been farthest developed. The National Retail Dry Goods Association, through its Controllers' Congress, has assisted the Federal Reserve Board in securing monthly reports from department stores. These reports are sent by the department stores to the various Federal reserve banks and forwarded by them to the Federal Reserve Board. The board then compiles a national summary of department-store business, which it sends to the National Retail Dry Goods Association and the reporting firms and also releases to the press.

The Controllers' Congress was particularly helpful in securing prompt sales reports from these department stores, enabling the Federal Reserve Board to issue on the 10th of each month a preliminary report of sales for the preceding month for about 500 stores. It is also through the aid of the Controllers' Congress that statistics are being received of sales and stocks in 45 separate departments from about 250 stores in the Boston, New York, Philadelphia, Cleveland, Chicago, Dallas, and San Francisco Federal reserve districts.

The Federal reserve banks in their respective districts have been assisted by local trade associations in securing reports of statistics of wholesale and retail trade from firms belonging to these associations. Some of the banks have also secured statistics in other lines through the aid of associations. The Chicago, Philadelphia, and St. Louis banks have been aided by associations in collecting from dealers statistics of sales and stocks of automobiles. In a number of other cases the Federal Reserve Board and banks have informal relations with trade associations, exchanging information of various kinds regarding trade conditions.

INTER AMERICAN HIGH COMMISSION, UNITED STATES SECTION

The Inter American High Commission is, broadly speaking, an international liaison organization serving Government officers in the

American Republics who direct commerce and finance. It is composed of national sections, each usually having nine members, presided over by a Cabinet officer, generally the Minister of Finance. Its work is directed by an executive council, at present consisting of the chairman, vice chairman, and secretary of the United States section. Its purpose is to aid in the removal of obstacles from the pathway of inter-American commercial and financial developments, by assisting in the preparation for official and semiofficial inter-American conferences; by participating in these meetings; and by aiding in the effectuation of the recommendations of these assemblies relative to procedure for obtaining greater uniformity of laws, regulations, and practices. Thus, the commission, which has no occasion to concern itself directly with trade promotional activities or to encourage wide contacts with the business community as a whole (for it has no organization to engage in such activities or to maintain numerous contacts), really affords a valuable clearing house for the business organizations of the American nations, enabling them to enjoy quasi official status for full, frank, and direct correspondence with one another, for the purpose of exerting influence in the shaping of legislation and other similar subjects along lines best calculated to serve the interest of expanding trade, financial, and social relations among these countries.

The contact of the United States section with trade associations in this country normally occurs through the Department of State (through the economic adviser's and solicitor's offices, on account of general interest in commercial treaties), and the bureaus of the Department of Commerce (such as the Patent Office and the Bureau of Foreign and Domestic Commerce). In addition, the section maintains contact and cooperates with those organizations whose titular executives have been made members of the United States section of the commission by the President of the United States.

STANDARDS SECTION

This section was organized primarily to assist in the development of the programs for the Pan American Standardization Conferences and to aid in the fulfillment of the recommendations made at these assemblies acting in the name of the "Commerce Department Committee on Pan American Standardization" as a liaison officer for the United States section of the Inter American High Commission to United States Federal agencies and to trade and engineering bodies concerned with commodity and merchandise standardization and the elimination of waste in industry. It collects and distributes standard specifications for materials promulgated in foreign countries, as well as information concerning them, and is responsible for

translating, editing, and distributing those industrial standards promulgated in the United States, which are published in the foreign language series issued by the Bureau of Foreign and Domestic Commerce.

FEDERAL SPECIFICATIONS BOARD

The Federal Specifications Board is concerned with the coordination of commodity specifications in Government purchase proposals as emanating from the various departments of the Government. Its several technical committees confer freely with the various trade associations at the time specifications are being formulated and enjoy full cooperation with them.

Among the more important associations thus far consulted are Industrial Oil Men's Association, Society of Automotive Engineers, Western Petroleum Refining Association, National Petroleum Association, American Petroleum Institute, Paint Manufacturers' Association, American Specialty Manufacturing Association, Rubber Manufacturing Association, Leather Belting Exchange, Underwriters' Laboratories, Cordage Institute of America, Cotton Duck Association, and American Paper and Pulp Association.

As additional technical committees are formed the proper trade association contacts will be established. An effort is made to form every contact that might prove useful in the work.

UNITED STATES BUREAU OF EFFICIENCY

The Bureau of Efficiency maintains an index of Government activities consisting of about 35,000 cards, arranged by subjects, showing the major activities and publications of the Government service from 1913 to date. This is a reference index only, from which to answer inquiries as to what has been done or is being done by the Government and to refer the inquirer to the proper office for the information that he may desire. In this way it serves trade associations and the public. This index will not be published in pamphlet form, as it is constantly being added to and kept up to date.

The only other cooperative activity of the Bureau of Efficiency arises through contact with the National Association of Office Managers, an organization comprising the active office managers of many of the country's largest and most important corporations. The purpose of the association is to interchange ideas and opinions upon the subject of office management. Through this association the Bureau of Efficiency obtains the results of inquiries made by members on questions of management and makes them available to the Government service. On its own part the bureau furnishes similar information to the association obtained through its contact with Government administrative problems.

SMITHSONIAN INSTITUTION

UNITED STATES NATIONAL MUSEUM

DEPARTMENT OF ARTS AND INDUSTRIES

The Department of Arts and Industries can point to a number of definite examples of cooperation with trade associations, which have resulted in mutual benefit. The cooperation of nearly a score of national trade associations was given the National Museum in its efforts to present by means of visual instruction to a half million yearly visitors, including many foreigners, the important resources and industries of the United States and the great and necessary part these play in the activities of the American people. Plans for the educational exhibits were laid before the associations. Each was invited to contribute exhibit material and to cooperate with the National Museum in its development of the educational side of the industries they represented. The educational exhibits shown in the National Museum not only impress foreign visitors with the magnitude of many American industries and the excellence of their products, but serve to awaken American citizens to the far-reaching importance to themselves of these industries and the need for upholding and conserving them.

The industrial exhibits in the National Museum have served to illustrate the arguments of some of the trade associations before the Ways and Means Committee in Congress, and are at all times available as convenient reference materials for the use of the Tariff Commission or those interested in presenting technical questions to legislative bodies. The collections have already served individual firms by furnishing valuable data for settlement of patent litigation, and the exhibits of properly recorded and catalogued manufactured goods have a great potential value to American industries in protection from certain kinds of patent litigation. The extension of the cooperation of the National Museum with trade associations will undoubtedly be much increased as soon as it is possible to secure additional exhibit room.

DIVISION OF GRAPHIC ARTS

The cooperative activities of the division of graphic arts of the United States National Museum consist principally in providing a place where the technical as well as the artistic side of the various processes and trades known as the graphic arts may be permanently displayed, and in gathering, preparing, and correctly labeling this material. The collections of the division may well be likened to a profusely illustrated book of reference, in which constant effort is being made to make it more useful. This, of course, also means

cooperation from a different angle—that of trade bodies cooperating with the Museum in assembling the necessary specimens.

The extent to which this exhibition may be made, not only of historical material, but of the latest methods, materials, and results in this field, is limited only by time and the willingness of the various trade and other organizations to furnish the specimens. Two classes of material enter into the exhibits—historical specimens and tools and modern specimens, and the various modern tools and appliances. While artistic merit is considered, this is of secondary importance in choosing specimens, the aim being to illustrate the material side of art. The collections contain not only manuscripts, drawings, paintings, and prints produced by many processes, but papers, canvases, pencils, brushes, colors, inks, plates, types, tools, and machinery as well. The early processes, such as wood engraving, engraving on copper, etching, lithography, and collography, and more modern processes almost without number are shown.

In the past the trade organizations have not been approached, but in the future opportunities will be open to those interested in completing and improving the educational exhibits of graphic arts. The division should be used as a book of written information; the specimens themselves, while they are interesting to look at, are only a small part of the whole. Not only are the exhibition halls open to the public, but the offices of the division as well, where much additional information is housed. Here those interested will be given all assistance possible in investigating any branch of the graphic arts.

FEDERAL BOARD FOR VOCATIONAL EDUCATION

The Federal Board for Vocational Education, under the terms of the national vocational education act and the civilian vocational rehabilitation act, is charged with the responsibility of promoting vocational education in the fields of agriculture, trade and industry, and home economics. It is also responsible for conducting studies and research work in all these forms of vocational education, and also in commercial education. In the discharge of this responsibility the board has considered that part of its duties consisted in rendering assistance directly to national organizations and to business and industrial oroganizations, as well as by cooperating with State educational departments.

The general policy of the board has been to hold itself in readiness to render assistance to national associations or to business or industrial organizations wherever a request for assistance has been made by such organizations. Wherever such a request has been made, the board has always taken the position that the organization,

through a representative committee or through its officers or membership, was the only authentic source of information as to what was needed to be done and the conditions under which it would have to be carried out, the board, through its technical staff, contributing only suggestions as to the educational procedure and the ways and means for accomplishing the educational purpose which the national association or organization desired.

This assistance in general has been of three kinds: First, aiding associations in developing educational courses which they desired to carry on within their own membership. This type of assistance has been rendered to such national associations as the National Association of Retail Grocers, the National Association of Retail Meat Dealers, the Laundryowners' National Association, and the Institute of American Meat Packers. In these, as in other similar cases, the work was carried on in cooperation with a committee of the association, the representatives of the board serving in a consulting capacity. The second type of assistance has been the aiding committees of associations to apply methods of analysis for determining what needed to be taught. This type of assistance has been rendered to such associations as the American Cotton Manufacturers' Association, the Technical Association of the Pulp and Paper Industry, the American Welding Association, the Horological Institute of America, American Hotel Association, Automobile Chamber of Commerce, the United Typothetæ of America, the National Association of Wall Paper Manufacturers, and the Granite Industries Apprenticeship Commission. The third type of assistance has been the development of work for the improvement of foremanship. This assistance has consisted largely in demonstrating conference methods for the improvement of foremanship in a number of large railway systems of the country, in various typical industries, and in rendering assistance to certain States in the training of plant representatives to carry on foreman conference work in their own plants. In a number of cases the results of such cooperative work have been published by the board.

Indirectly, the board has been of assistance to a number of national associations through improving the status of vocational schools affecting the industries represented by these associations, through the establishment of training standards, by the analysis of problems incident to training, and in cooperation with national associations in the development of plans for apprentice training.

In the field of agricultural education steps have already been taken toward closer cooperation with various farm enterprises, exchanges, associations, and organizations such as the American Farm Bureau Federation.

The rehabilitation division of the Federal Board for Vocational Education carries on cooperative activities, mostly with State industrial accident commissions, the International Assocation of Industrial Accident Boards and Commissions, the National Safety Council, the American Federation of Labor, and other similar associations in vocational rehabilitation supplemental to compensation for injuries and carrying to its logical conclusion, by returning the disabled to industry, the fundamental philosophy and policy supporting workmen's compensation legislation.

DEPARTMENT OF COMMERCE

In the performance of his prescribed duties the Secretary of Commerce has frequently taken advantage of the opportunity to form direct contact with industry and commerce through the trade association. Examples of this procedure go beyond the ordinary business connections of the Bureau of the Census, Bureau of Foreign and Domestic Commerce, and Bureau of Standards. At not infrequent intervals important meetings, such as the unemployment conference, are held at Washington under the direction of the Secretary of Commerce. These have served to reinforce this existing intimacy and purpose of the department to be the "department of service" to industry and trade.

The Bureau of the Census, Bureau of Foreign and Domestic Commerce, Bureau of Standards, and Bureau of Mines, because of their many points of contact with manufacturing and trade, have been styled the four "service bureaus" of the Department of Commerce. The most recent addition to the service units of the department is the Bureau of Aeronautics, organized in 1926. There are six other bureaus of the department, but because of the fact that their functions are restricted to more limited fields of industry or commerce, they are not so generally known to trade associations; these are the Bureau of Fisheries, Bureau of Lighthouses, Coast and Geodetic Survey, Bureau of Navigation, Patent Office, and Steamboat Inspection Service. Their duties are indicated by their titles.

As trade association executives will find their principal contacts with one or all four of the "service bureaus" mentioned—Bureau of the Census, Bureau of Foreign and Domestic Commerce, Bureau of Mines, and Bureau of Standards—the following pages are devoted to a more comprehensive survey of their qualifications to be of real service to almost every type of industrial or trade organization in the many ramifications of their production and distribution problems.

BUREAU OF THE CENSUS

The Bureau of the Census, as the Government's principal statistical office, is at all times engaged in work which is of interest and concern

to all branches of industry and commerce. Much of the basic information with regard to the economic progress of the United States is dependent upon the work of this bureau. For example, the data on population and the statistics of the census of agriculture and the census of manufactures are used daily by business men as factors in determining basic business policies such as distribution, sales, and plant location.

Most of the work of the Bureau of the Census has been of a fundamental nature, stressing accuracy and completeness rather than promptness in publication. The census information, because of the necessary details and checks upon its accuracy, can not be issued promptly enough to render the fullest service.

Within recent years there has been a great increase in the statistical activities of trade associations with a view to furnishing current information. Certain Government agencies have also undertaken to compile figures of this nature, of which the reports on cotton and cottonseed, hides and leather, and the active and idle wool machinery, issued by the Bureau of the Census, import and export statistics from the Bureau of Foreign and Domestic Commerce, and production statistics of coal and cement from the Bureau of Mines are selected examples from a much larger number of similar Government activities.

The work of the Bureau of the Census can be divided into two general headings: (1) The decennial census, and (2) intercensal inquiries.

DECENNIAL CENSUS

The decennial census embraces four separate major inquiries, as follows: (1) Population, including occupations; (2) agriculture, including irrigation and drainage; (3) manufactures; (4) mines and quarries, including oil and gas wells.

A generous selection from the available information on population, agriculture, manufactures, and mining is presented by counties in a series of compendiums, one for each State, which may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C.

POPULATION

The census of population is the oldest and the most fundamental of the decennial inquiries. From little more than a mere count of the population at the first census, taken in 1790, it has grown into a comprehensive classification of the inhabitants of the United States. The elements entering into the classification include sex, color or race, nativity (native or foreign born), parentage of the native born (native, foreign, or mixed parentage), State of birth of the native

population (indicating interstate migration), country of birth of the foreign born, country of birth of parents of natives with foreign-born parents, country of origin of the foreign white stock (including both foreign born and natives with foreign-born parents), year of immigration of the foreign born, citizenship of the foreign born, mother tongue of the foreign white stock, age, marital condition, illiteracy, inability to speak English, school attendance, dwellings and families, ownership of homes, mortgage debt on owned homes, occupational status (whether gainfully employed or not), specific occupation (572 occupations and occupation groups).

The reports of the recent decennial censuses show the population for the States and the larger cities classified according to the elements listed above. For counties and smaller incorporated places having 2,500 inhabitants or more, the figures are shown in condensed form for most of the elements listed, while for incorporated places having less than 2,500 inhabitants and for minor civil divisions (townships, etc.,) the total population alone is given.

Other geographic areas for which figures are published include groups of cities classified according to size, the total urban population (population of cities and other incorporated places having 2,500 inhabitants or more), the rural population (which includes the smaller incorporated places, with less than 2,500 inhabitants), and the farm population.

The data classified under the various topics listed above are published in the general report of the 1920 population census (Volume II of the Fourteenth Census Reports), a single chapter being devoted to a topic in most cases, though the statistics of occupations occupy a whole volume (Vol. IV of the Fourteenth Census Reports). Most of these chapters have been reprinted as separate bulletins, and some of these are still available for distribution upon request.

The amount of information tabulated from the 1920 population schedules was considerably greater than could possibly be published, even in the four large volumes allotted to this subject. Arrangements are frequently made to compile unpublished data (especially data for small areas that are not shown separately in the printed reports) for the use of business establishments and social organizations, the expense of the compilation being borne by the organization for which the work is done.

AGRICULTURE

The census of agriculture has formed a part of each decennial census, beginning with that of 1840. Beginning with 1925, in accordance with the provision made in the Fourteenth Census act, this inquiry will be made quinquennially. The census to be taken in the

middecennial year will, however, be reduced in scope as compared with that taken in the decennial year.

The census of agriculture constitutes a general inventory of the nearly 6,500,000 farms in the United States and the livestock in nearly 2,000,000 stables and in other inclosures not on farms. In no other report, governmental or private, is there contained so vast an amount of information concerning the country's agricultural activities.

The principal items in the census inventory are number and acreage of farms; acreage of improved farm land; value of farm property, with separate figures for land, buildings, implements and machinery, and livestock; and the numbers of the various kinds of livestock. All these inventory items are classified both according to size and according to the tenure of the farm operator. In 1920 the tenure classification showed, in addition to full owners, part owners and managers, and five types of tenants, namely, cash tenants, share tenants, share cash tenants, croppers, and standing renters.

Considerable information is given with regard to the farm operators, including color and nativity, with country of birth for the foreign born, age, and farm experience. These characteristics are tabulated in connection with tenure.

The census reports also show the amounts expended by farmers for feed, fertilizer, and labor; and the amount of the mortgage debt on those farms operated by their owners.

Statistics are given for the various livestock products, and for crops, covering the products of the year preceding the census date. The figures for dairy products include the total production of milk, the quantities of butter and cheese made on farms, and the sales of milk, cream, butterfat, and butter. Other livestock products are wool, mohair, eggs, and honey. The 1920 reports also show the number of calves, lambs, pigs, and chickens raised during the year, the number of cattle, sheep, and swine slaughtered on farms, and the estimated value of all domestic animals sold or slaughtered by farmers. For most farm crops the acreage harvested, the production, the value, and the number of farms reporting are shown.

The principal items in the farm census are published by counties, though some of the classifications, such as the classification of farm operators by age or by country of birth, are published only for States.

The first decennial census to contain a report on irrigation was the eleventh (1890). It was not until 1910, however, that complete statistics on this subject were collected and tabulated. The Fourteenth Census statistics on irrigation, which are comparable with those contained in the Thirteenth Census reports, show, by States,

counties, and drainage basins, the following items of information: Cost and character of enterprise; number of wells and pumping plants, number and capacity of reservoirs, and length of ditches; cost of maintenance and operation; acres of land irrigated under State and Federal laws, and whether water was obtained from national, State, or private works; areas of land in irrigation projects either drained or needing drainage; quantity of water used for irrigation; acreage, character, yield, and value of crops grown on irrigated land, with average yield on irrigated and nonirrigated land.

The census of 1920 was the first to include an inquiry concerning drainage of agricultural land. On the Fourteenth Census date approximately 69,000,000 acres were embraced in enterprises organized to provide drainage by cooperation among the owners of the land to be benefited. Some of the drainage enterprises were organized before 1860, but for more than three-fourths of the area covered the enterprises have been organized since 1900. Artificial drainage has been provided by individual farm owners for a total of 53,000,000 acres.

The report on drainage shows the acreage of farm land drained and the acreage needing drainage, the expenditures for drainage works, the number and character of organized drainage enterprises, the acreage included, and similar items.

MANUFACTURES

Prior to the Twelfth Census (1900) the census of manufactures was taken at 10-year intervals as a part of the decennial census; from 1900 to 1920 it was taken quinquennially; and since 1920 it has been taken biennially—for 1921, 1923, etc. The biennial censuses are somewhat reduced in scope as compared with the decennial inquiries.

At each decennial census of manufactures data are collected on the following subjects: Capital invested; persons engaged; salaries and wages paid; cost (and in some instances quantities) of materials used; amounts paid for rent, taxes, and other principal items of expense; quantities of the several kinds of fuel consumed; number, type, and horsepower of primary power machines; value of products, and numbers or quantities of principal classes or kinds of products. The statistics have been presented separately for each industry, for each State, and for each large city. The industrial statistics cover both the United States as a whole and individual States and large cities; and the statistics for States and large cities are presented by industries. Summary figures covering all industries combined are given for small cities (cities having from 10,000 to 50,000 inhabitants).

MINES AND QUARRIES

At each decennial census there are also collected data regarding mines, quarries, and petroleum and natural-gas wells. In the collection of these data the Bureau of the Census cooperates with the Bureau of Mines, which compiles annually statistics on mineral production. The statistics on mines and quarries show for each State and each important industry the number of enterprises; number of mines and quarries (or wells); acreage of land controlled; persons engaged, distributed according to occupational status and sex; capital invested; principal expenses; power; and quantity and value of products.

INTERCENSAL INQUIRIES

Intercensal inquiries conducted by the Bureau of the Census may be grouped as decennial, quinquennial, biennial, annual, and current, the last named meaning statistics collected monthly, semimonthly, quarterly, or semiannually.

DECENNIAL INQUIRIES

Decennial intercensal inquiries include the following: Wealth, public debt, and taxation (1912, 1922, etc.); religious bodies (1916, 1926, etc.); dependent, defective, and delinquent classes (1923); transportation by water (1916, 1926, etc.).

Wealth, public debt, and taxation.—These statistics are used to show the great increase in taxation, cost of government, indebtedness, and taxable valuation of the State and local governments. The digest of revenue laws relating to taxation is used by legislative bodies in studies of taxation. Estimates of wealth are used extensively by economists. Data as to total wealth, both public and private, public indebtedness, and taxation were collected at each decennial census from 1850 to 1890, inclusive, and since 1890 the inquiries have been made independently of the decennial censuses. The reports of the last inquiry relate to the fiscal year 1922 and cover all other civil divisions, 1922 and 1912; assessed valuation of property and amounts and rates of levy, 1860 to 1922 (for States, counties, municipalities, and all other civil divisions); digest of laws on taxation and revenue systems of States and local governments, 1922; principal revenues of counties, municipalities, and all other civil divisions, 1912 and 1922; and estimated valuation of national wealth, 1850 to 1922 (by States).

Religious bodies.—The more important items published include the number of churches, by denomination, the membership, the value of church property, expenditures, number of teachers and scholars in

Sunday schools, etc. Some information with regard to religious bodies was collected in connection with the censuses of 1850, 1860, 1870, and 1890. Special reports covering this field in detail were published for 1906 and 1916, and the information is now being gathered for a similar report to cover the year 1926.

Dependent, defective, and delinquent classes.—The statistics for the dependent, defective, and delinquent classes for 1923 are published in a series of reports, as follows: Prisoners (prisons, reformatories, jails, and workhouses), patients in hospitals for mental disease, feeble-minded and epileptic in institutions, children in institutions (including juvenile reformatories), almshouses, hospitals and dispensaries, the blind, and deaf-mutes.

Transportation by water.—A special census of water craft and transportation by water is taken decennially, the last published report relating to the year 1916. It covers all American-owned vessels of 5 tons net register or over, engaged in either domestic or foreign commerce, and shows the character of ownership, tonnage, motive power, persons employed, passengers, and freight carried. The data are now being collected for 1926.

QUINQUENNIAL INQUIRIES

The quinquennial inquiries now undertaken include electrical industries (1922, 1927, etc.) and agriculture (1924–25, 1929–30, etc.).

Electrical industries.—Beginning with 1902, censuses of the electrical industries of the United States have been taken at quinquennial intervals. These censuses cover central electric light and power stations, electric railways, telephones, and telegraphs. The reports of this census present physical and financial statistics in regard to equipment and operation, and show the output of the light and power stations, the passenger and freight traffic on the electric railways, the number of telegrams, the number of telephone conversations, and other details.

Agriculture.—The first mid-decennial census of agriculture was taken as of January 1, 1925, under the provision made in the Fourteenth Census act for a census of agriculture to be taken in that year and once every 10 years thereafter (in addition to the regular decennial census). The census of 1925 was less extensive than that taken in the decennial year, the number of inquiries on the schedule having been reduced to less than one-half. The enumeration showed a total of approximately 6,372,000 farms in the United States.

The reports give statistics, by States and counties, for the number, acreage, and value of farms, acreage of crop land harvested, and value of implements and machinery, classified according to tenure of operator; size of farms; classification of farm land; mortgage debt;

farm expenditures for feed, fertilizer, labor, and lumber; sales and purchases through cooperative organizations; tractors, radio outfits, and silos on farms; kinds of road adjoining farm; number and value of the various kinds of livestock; quantity and value of dairy products, poultry products, and of wool and mohair produced; value of principal crops, and acreage harvested and production of each; and farm population classified by age, sex, and color.

BIENNIAL INQUIRIES

Manufactured products.—The Fourteenth Census act (approved March 3, 1919) provided for the collection, at biennial intervals, of statistics of the products of manufacturing industries. The first inquiry made under this provision of law covered the calendar year 1921.

In connection with the formulation of the schedules used at the biennial censuses the bureau confers with the National Association of Manufacturers, committees from civic organizations, representatives of important trade associations, Government bureaus, and various statistical and manufacturing experts throughout the country. In this manner much valuable advice in connection with the perfection of short yet comprehensive schedules is secured, and at the same time the widest publicity is given to the census, and there is cultivated a spirit of cooperation which is of great assistance in obtaining reports from individual manufacturers.

At the biennial censuses, data are collected on the following subjects: Persons engaged in manufactures; salaries and wages paid; costs, and in some cases quantities, of materials used; value of products; number, type, and horsepower of primary power machines. For the more important industries data in regard to numbers or quantities and values of individual classes or kinds of products are collected, and in some cases the statistics relating to products are given in great detail. For some of the minor or less important industries, however, only the total value of products, without detail as to kinds or classes, is shown.

The statistics are tabulated primarily by industries and within each industry by States. The present classification embraces 334 distinct industries.

Summaries for States and for large cities are also tabulated. Each of these summaries gives statistics for all industries for which separate figures can be shown without disclosing the operation of individual establishments.

ANNUAL INQUIRIES

These inquiries include vital statistics (births and deaths); marriages and divorces; financial statistics of States and of cities having

30,000 inhabitants or more; statistics of forest products, clay products, farm equipment, and lighting equipment.

Vital statistics.—For more than 25 years the Bureau of the Census has been fostering the adoption by State governments of adequate legislation for the registration of births and deaths; and as the States enact such legislation and give satisfactory evidence of proper enforcement, they are included in the Federal registration area, for which the bureau's annual statistics are secured.

The death registration area now embraces 40 States, the District of Columbia, 24 cities in nonregistration States, the Territory of Hawaii, and the Virgin Islands. The birth registration area includes 33 States, the District of Columbia, and the Virgin Islands. The proportion which the population of the death registration area forms of the total population of the United States increased from 41 per cent in 1900 to 89.2 per cent in 1926, and the corresponding proportion for the birth registration area increased from 31 per cent in 1915 to 76 per cent in 1926.

The rapid extension of the birth registration area makes it possible to present, for a continually increasing portion of the country, accurate birth rates, accurate infant mortality rates, and accurate death rates from puerperal causes.

The annual mortality statistics give the number of deaths from each cause in each locality, and thus make it possible to measure the toll of death exacted by each cause from year to year. Such figures serve as the foundation of public-health work. They indicate to the public-health officer the most promising direction for the expenditure of funds appropriated for such work, and they clearly show what degrees of success have attended the campaigns for better health in former years. The declines in the infant mortality rate and in the death rates from typhoid fever, diphtheria, tuberculosis, and many other diseases are striking proof of the success of former campaigns, while the continually mounting rates from cancer and heart diseases are revealed.

Mortality statistics measure not only the ravages of disease, but also the fatalities from accidents. Here, too, the declining death rates for most forms of accidents are encouraging, the principal exception being the increase in the rate from motor-vehicle fatalities.

The bureau has published 24 annual reports giving detailed mortality statistics, 9 annual reports giving detailed birth statistics, 3 volumes of life tables, a special volume of mortality rates, and monographs from time to time covering vital statistics.

Marriage and divorce.—The annual report on marriage and divorce shows, by States and counties, the number of marriages performed during the year and the number of divorces, classified as follows:

(*a*) As contested or not contested. (*b*) as granted to husband or to wife, (*c*) by cause for which divorced, (*d*) by number of years married, (*e*) by number of minor children affected by decree. Press statements giving the number of marriages and divorces, by counties, are issued, State by State, as the returns are completed. Statements giving the 1925 figures had been issued for 33 States prior to September 1, 1926. These statistics are of great value to sociologists and those studying the divorce question.

Financial statistics of State and city governments.—The Bureau of the Census publishes annual reports giving statistics of the financial transactions of the municipal governments for all cities of 30,000 inhabitants or more. These reports show total and per capita payments for expenses, interest, and outlays; total and per capita indebtedness; estimated trade value and assessed valuation of property; and taxes levied, rates, methods of assessment, and further details.

For some years the Bureau of the Census has been compiling and publishing annual reports giving statistics for the financial transactions of State governments, similar in scope to the reports for the cities.

Forest products.—Data in regard to lumber, lath, shingles, and pulpwood have been collected at each of the decennial, mid-decennial, and biennial censuses of manufacturers; and from 1906 to 1912 the Bureau of the Census and the Forest Service of the Department of Agriculture cooperated in the collection of annual forest-products statistics, begun by the Forest Service in 1905. Upon the issuance of the report for 1912 the bureau discontinued its work in connection with the annual inquiries because of the lack of any specific legislation authorizing them. The Forest Service thereupon carried on the inquiry for 1913; those for 1914 and 1919 were covered by the mid-decennial and decennial censuses of manufacturers; and those for the years 1915 to 1918, inclusive, and for 1920 were made by the Forest Service. Since 1920 data concerning the production of lumber, lath, shingles, and wood pulp and the consumption of pulpwood have been collected annually by the Bureau of the Census under a cooperative arrangement between that bureau and the Forest Service. The arrangement also provides for the collection, through the biennial census of manufactures, of data as to certain other forest products, such as cooperage stock, veneers, excelsior, and tanning materials.

Annual statistics in regard to the production of turpentine and rosin are collected by the Bureau of the Census in cooperation with the Bureau of Chemistry of the Department of Agriculture.

Farm equipment.—The annual series of reports on the manufacture and sale of farm equipment began with the report for 1920, which

was compiled and issued by the Bureau of Public Roads, Department of Agriculture. For 1921, and subsequent years, however, the data have been collected and the reports prepared and published by the Bureau of the Census. All classes of farm machinery, vehicles, implements, and tools, for which it is practicable to secure information are covered by these reports. The canvasses for the years 1920, 1922, and 1924 related to production and sales only, whereas the inquiries for the intervening years were of broader scope, having been made as a part of the biennial census of manufactures, at which times data were collected in regard to number of employees, salaries and wages, cost of materials, and value of products.

The clay-products industries.—This inquiry, which relates to the manufacture of brick and tile, pottery, and nonclay refractories, was formerly conducted by the United States Geological Survey, but was transferred to the Bureau of the Census in order to avoid duplication of work. The report for 1922 was the first to be compiled and published independently of the biennial census. This report, like that for 1924, presented statistics of production and sales only, whereas the reports for biennial-census years include the general statistics common to all manufacturing industries.

Lighting equipment.—The annual collection of data for lighting equipment was inaugurated at the request of manufacturers and associations representing this industry. The first report covered the year 1922 and related to kind and value of products. As in the case of other annual industrial censuses, data for intercensal years are collected entirely by correspondence.

SEMIANNUAL INQUIRIES

Two semiannual inquiries have been undertaken by the Bureau of the Census, one relating to fertilizer materials and the other to paints and varnish. The results are issued in mimeographed statements, and summaries are published in the Survey of Current Business.

Production and stocks of sulphuric acid and acid phosphate used in the manufacture of fertilizer.—At the request of the National Fertilizer Association, the Secretary of Commerce directed the Bureau of the Census to undertake a semiannual survey of the production, sales, and stocks of sulphuric acid and acid phosphate used in the manufacture of fertilizers. The first report covered the period from January 1 to June 30, 1922. Data were returned by approximately 200 establishments.

Paint and varnish industries.—At the request of representatives of the paint and varnish manufacturers of the United States, statistics on paint and varnish production and sales are being collected

and published semiannually by the Bureau of the Census. The first of these reports, which was issued in November, 1922, showed the production for the first six months of 1922 in comparison with the full year's production for 1920 and 1921. Data are returned by approximately 600 establishments.

QUARTERLY INQUIRIES

Seven additional inquiries—stocks of leaf tobacco, wool, and wheat and wheat flour, production and stocks of animal and vegetable fats and oils, production of glue and gelatin, shipments of mining and industrial electric locomotives, and bookings of electrical manufactures—are now undertaken at quarterly intervals. Mimeographed statements are issued upon completion of each compilation, and summaries are also presented in the Survey of Current Business.

Stocks of leaf tobacco.—Under the acts of Congress approved April 30, 1912, and May 10, 1916, statistics showing the quantities of leaf tobacco held by manufacturers and dealers on specified dates are compiled and published quarterly by the Bureau of the Census. Annual bulletins are also published by the bureau, containing comparative figures for stocks of leaf tobacco as compiled from the returns of each canvass since the inauguration of the inquiry. In addition to statistics of leaf tobacco held, figures are presented on the production, consumption, imports, and exports of tobacco, prices obtained by growers, kinds and quantities of products manufactured from leaf tobacco, and revenue collected by the Federal Government. In these bulletins the statistics for the various phases of the tobacco industry, as published by a number of Federal agencies, are assembled and presented in convenient form for ready references.

Statistics of fats and oils.—Since the beginning of 1919 the Bureau of the Census has collected, at quarterly intervals, data as to the factory production, factory consumption, and stocks of animal and vegetable fats and oils. Pamphlets showing the production, consumption, imports, exports, and stocks of the several fats and oils, by quarters and by years, beginning with 1919, are published annually. These pamphlets also contain data as to the quantities of the several oil-bearing nuts and seeds used in the manufacture of vegetable oil.

Wool stocks.—Beginning with the quarter ended June 30, 1922, the Bureau of the Census took over the work of compiling at quarterly intervals data on the stocks of wool in the hands of manufacturers. The Bureau of Agricultural Economics of the Department of Agriculture continues to compile statistics on the stocks of wool in the hands of dealers, and through a cooperative agreement both sets of figures are combined and issued jointly by the two bureaus. These figures show the stocks of wool by condition, class, and grade, with separate data for foreign and domestic wool.

Wheat and wheat-flour stocks.—Beginning with June 30, 1925, the Bureau of the Census has issued a quarterly report on wheat and wheat-flour stocks held by mills. This report presents data for the number of bushels of wheat held under mill ownership in country elevators, in public terminal elevators, in private terminal elevators, in transit, and in mills and mill elevators attached to mills. There is also shown the total quantity of wheat flour held by mills in private warehouses, public warehouses, in transit, and in mills, sold and unsold.

Glue and gelatin.—For 1922 and 1923 the Bureau of the Census collected and published annual statistics in regard to production of all classes of glue, and of gelatin of animal origin; for 1924 and subsequent years the collection and publication of data in regard to production and stocks of animal glue have been made at quarterly intervals; and for 1925 and subsequent years similar data in regard to edible gelatin have been collected and published.

Mining and industrial electric locomotives.—This inquiry was inaugurated in 1924 at the request of the industry for more current and more detailed statistics. The data show shipments by manufacturers of both mining and industrial electric locomotives, each being classified as to trolley and storage-battery types and as to number and value. Practically the entire industry is covered.

Bookings of electrical manufacturers.—This inquiry was started in 1926, with data extending back to 1922 by quarters, and is designed to show the trend of the electrical industry through the quarterly bookings of the largest manufacturers in dollar values. The figures are being expanded and made more representative through the addition of other companies.

MONTHLY INQUIRIES

While some monthly inquiries, such as those pertaining to cotton, have been undertaken for many years, by far the larger proportion of these inquiries have been started within three or four years in response to the rising demand from associations and business men for more and better current statistics. In this manner the more important production data presented in the census of manufactures are made of current use in solving business problems. The bureau aims to collect only such data as are not already adequately covered by trade-association or other statistics, and undertakes new inquiries only upon request and pledge of cooperation of a majority of the industry. The details of the bureau's plan in this respect, and particularly its supplementing of trade-association figures from data from nonmembers to complete the industry totals, as is now done in nine of these inquiries, are described in Chapter III. Mimeographed

statements on all monthly inquiries conducted by the Bureau of the Census are issued as quickly as the figures can be compiled, and are distributed to the manufacturers furnishing data, to the press, and to others interested. All these data are also brought together, sometimes in more summary form, in the Survey of Current Business, with the data from other sources.

The following list shows the monthly inquiries which are now being made by the Bureau of the Census:

BY THE DIVISION OF COTTON AND TOBACCO

Cotton consumption and stocks in mills and warehouses.
Cotton-spindle activity.
Cotton ginned (semimonthly during the ginning season, August to January).

BY THE DIVISION OF AGRICULTURE

Active and idle wool machinery, giving both number of machines and machine hours for spindles, looms, cards, etc.

Wool consumption by textile mills classified as to condition, grade, etc., and whether domestic or foreign wool.

Hides, skins, and leather, showing stocks of hides and skins, and production and stocks of leather.

Boot and shoe production, classified by kind, whether high or low cut, athletic, men's, women's, etc.

Leather gloves and mittens cut, classified according to leather used, and by kind, whether dress, work, all leather, part leather, men's, women's, etc.

Pyroxylin-coated textile production, shipments, unfilled orders, and plant capacity.

Hosiery production, orders, stock, and shipments classified according to materials, as wool, cotton, silk, rayon, etc., and by kind, as men's, women's, full-fashioned, seamless, etc.

Knit-underwear production by kind, orders, stock, and shipments.

Men's and boys' clothing cut, by kind, whether suits, trousers, overcoats, etc.

Work garments cut, classified by weight of cloth, shipments, and stock.

Mechanical-stoker sales, classified by kind of installation, whether under fire-tube or water-tube boilers.

Steel-barrel production, shipments, stocks, and unfilled orders.

Malleable-castings production, shipments, orders booked, and plant capacity in tons.

Wheat ground and wheat-milling products.

BY THE SURVEY OF CURRENT BUSINESS DIVISION

Automobile production, showing passenger cars and trucks and Canadian production.

Babbitt-metal consumption and sales.

Box-board production, stocks, shipments, consumption of waste paper, etc.

Electric industrial trucks and tractors, shipments by manufacturers.

Electrical manufacturers' new orders.

Enameled sanitary ware, new orders, shipments, and stocks, by classes.

Enameled sheet-metal ware, shipments, classified.

Fire-extinguishing equipment, shipments by manufacturers, classified.

Domestic pumps and water systems, shipments and stocks, classified.
Galvanized sheet-metal ware, production and shipments.
Plumbing fixtures, wholesale prices.
Railroad locomotives, steam and electric, shipments and unfilled orders.
Steel castings, new orders and production, classified.
Steel furniture, new orders, shipments, and unfilled orders, classified.
Steel-plate fabrication, bookings, classified.
Structural-steel fabrication, bookings and shipments.
Terra-cotta (architectural), bookings.
Floor and wall tile, production, shipments, and stocks, classified.
Wood chemicals (acetate of lime and methanol, both crude and refined), production, shipments, stocks, and wood consumption, including Canadian operations.

SURVEY OF CURRENT BUSINESS

Realizing the importance of collecting under one cover as many business facts as possible, for the guidance of business men in showing their policies on the basis of facts rather than guesswork, the Department of Commerce decided early in 1921 to bring the more important figures collected by Government, trade, and commercial agencies into one publication. Thus developed the Survey of Current Business, inaugurated on a monthly basis in July, 1921. Starting with about 200 items of major importance, this number has been gradually increased to over 1,500, in spite of omissions and combinations of less important material. In each issue comparisons are given for each item for several months past. In the semiannual numbers the figures are presented monthly for two years and annual averages are given, extending back to 1913 where available. The data cover such items as production, stocks, new orders, unfilled orders, shipments, imports, exports, prices, employment, and various financial and trade items. Almost every important field of industry and commerce is represented in the Survey, classified under textiles, metals, machinery, automobiles, fuels, paper, rubber, leather, building construction, lumber, stone, clay and glass products, chemicals, foodstuffs, tobacco, transportation, distribution, employment, finance, and foreign trade and exchange.

The semiannual issues, published in February and August, present special tables for each half year, as well as the details for earlier periods and a complete explanation of the data, the method of their compilation, and their sources. These issues contain approximately 160 pages each, while the small bulletins contain only about 48 pages and are issued in the intervening months. In both issues the statistical data are supplemented by text matter and numerous diagrams, indicating at a glance the chief trends for each industry. The data for the August, 1926, issue covered 1,698 separate business indicators furnished by 111 trade associations, 41 Government agencies, 35 technical periodicals, and 37 other organizations.

The difficulty in obtaining a general indication of conditions from a mass of separate industries has led to the preparation of combined index numbers on production, stocks, and unfilled orders in which the data from each industry available are combined into a composite to show the general trend. In this compilation each industry is weighted according to its importance and is based on a common year.

Owing to the delays incident to gathering and printing such a mass of figures, even for the monthly bulletin, weekly supplements are issued to all readers of the "Survey," presenting the latest figures as soon as available, and press releases on the material are sent to the newspapers.

Through the Survey of Current Business it has been found possible to obtain with the least possible effort a bird's-eye view of the entire commercial and industrial situation in the United States, month by month, based on reported facts instead of on guesswork and opinion. Some of the many uses of these figures are outlined in Chapter III. The Survey is also used as a reference work in studying business trends. The field covered by the Survey is being constantly widened, 106 new items having been added during the first half of 1926. Furthermore, improvements are constantly being made in the figures, and data are becoming available on more industries as each group realizes the advantages of the possession of such facts for its own business.

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

SCOPE OF ACTIVITIES

The Bureau of Foreign and Domestic Commerce is concerned primarily with the promotion of export trade in all types of American products, both raw materials and manufactures. It is the chief informational agency of the American exporter and is his point of contact with Government representatives stationed abroad. In gathering information on foreign markets the bureau has the services of commercial attachés and trade commissioners in 45 of the leading commercial cities in foreign countries, besides the hundreds of American consular officers in all parts of the world. In distribution of trade information the bureau has 57 district and cooperative offices in the principal cities of the United States. At Washington the bureau is organized on the basis of administrative, commodity, regional, and technical divisions, directed by experts selected from specific lines of business because of their general knowledge of the problems attendant upon export trade. The domestic commerce division, organized in 1923, now provides an agency for the study of the major problems of domestic production and distribution.

To cooperate more effectively with trade and industry, there are 14 commodity divisions headed by men with practical business experience and training, both at home and abroad, in the specific commodities handled, and with a first-hand knowledge of the problems confronting American exporters in the development of foreign markets. The 14 divisions are as follows:

Agricultural implements.
Automotive.
Chemical.
Electrical equipment.
Foodstuffs.
Hides and leather.
Industrial machinery.
Iron and steel.
Lumber.
Paper.
Rubber.
Shoe and leather manufactures.
Specialties.
Textiles.

AGRICULTURAL IMPLEMENTS DIVISION

The chief point of contact of the agricultural implements division with industry is through the National Association of Farm Equipment Manufacturers. The membership of this association comprises the leading farm equipment companies of the United States, whose combined output is estimated at more than 90 per cent of all the farm machinery produced in the United States. The association represents the consolidation of 10 trade organizations, whose members recognized the distinct advantage of belonging to a large association representing the entire industry, and consequently able to function more effectively with respect to the larger and more important matters than could the smaller groups, while at the same time providing every service that could have been offered by the latter.

The agricultural implements division was instrumental in bringing the National Association of Farm Equipment Manufacturers and the division of simplified practice together to develop simplified practice recommendations. The first conference, held in 1924, resulted in a reduction of varieties of plow bolts from 1,500 to 840.

Close cooperation with this association on the part of the agricultural implements division has proved the best means of maintaining an effective contact with the trade as a whole. All subjects relating directly or indirectly to the export of agricultural implements and tractors and to their manufacture and sale in foreign countries fall within this division's work. Some of its important functions include the arrangement and interpretation of monthly export statistical tables and the study of agricultural implement production and exports of foreign countries. Analyses of important foreign markets have been made, and in some cases information has been secured by means of special questionnaires directed to Government field officers. Other subjects in which this division is interested and on

which it is constantly keeping the trade informed include methods of selling implements in different countries; conditions of soil, climate, and customs that affect the use and sale of modern labor-saving agricultural devices; types of machinery, implements, and tractors best adapted to the practical needs of a country or district; and the method and extent of competition from foreign countries.

AUTOMOTIVE DIVISION

The automotive division cooperates actively with the National Automobile Chamber of Commerce, the Motor and Accessory Manufacturers Association, Motor Cycle and Allied Trade Association, Aeronautical Chamber of Commerce, National Association of Engine and Boat Manufacturers, Automotive Manufacturers Association, Automotive Equipment Association, and the National Standard Parts Association. Besides transmitting trade opportunities to manufacturers and helping them in securing agents, it has brought about modifications of prejudicial tariff and taxation requirements affecting American products, and has cooperated in the promotion of the world-wide better-roads movement and in the general development of motor transportation in foreign countries.

The competitive force of automotive production in the leading European countries is a matter of constant study, and by means of questionnaires practically every important market for American automotive products abroad has been investigated. Comprehensive studies of automotive markets in the Far East have been accomplished through the efforts of a special automotive trade commissioner. Closer contact with the Government representatives abroad is contributing to the completion of the division's reference file, which is to include all possible information on automotive export. A new line of endeavor of the division will be the preparation quarterly of a special forecast sales analysis of foreign markets for American automotive products. The commodities with which this division primarily concerns itself are passenger cars, motor trucks, trailers, motor cycles, motor boats, small marine engines, airplanes, automotive accessories and parts, and garage equipment.

CHEMICAL DIVISION

The chemical division specializes on chemicals, drugs, pharmaceutical and toilet specialties, fertilizers, naval stores, paints, varnishes, and explosives. The personnel of the advisory committee includes men prominent in the industry and in the associations. This committee was set up to serve as a special liaison with industry, and to that end has established active contacts which 30 national trade associations.

In addition to the usual statistical activities, the division has established a special statistical service in cooperation with the chemical division of the Tariff Commission and the Customs Service of the Treasury Department. Within two or three days after the close of each month a complete tabulation is issued of all dyes and other synthetic chemicals imported.

The division has participated in the industrial simplification program and also has been called upon to assist in that part of the wood conservation program of the National Committee on Wood Utilization which treats of chemical utilization of wood waste.

ELECTRICAL EQUIPMENT DIVISION

The work of the electrical equipment division has been shaped closely along the lines suggested by the organized associations of the industry. In this regard the division has had as its chief point of contact a cooperating committee selected from the Electrical Manufacturers' Council. It also maintains direct contact with 12 associations completely embracing the industry. The scope of the work of the division may be divided into three phases—statistical, foreign standards and practice, and sales service. The principal activities of the electrical manufacturers' committee in connection with statistical data have illustrated some of the advantages and opportunities now being offered by the division both to trade associations and to the industry in general.

Possibilities for more intensive development beyond the activities now being carried out by the electrical equipment division in cooperation with trade associations lie in connection with foreign standards and practice. Plans for the dissemination of knowledge of American standards and practice abroad are being considered in cooperation with the committee. Comprehensive studies of foreign markets for American electrical equipment have been made by representatives of the bureau from time to time, and in the summer of 1922 a complete survey of Scandinavian markets was effected.

A domestic merchandising survey was prepared in cooperation with the domestic commerce division, and similar research is now being carried on in conjunction with the committee on the relation of electricity to agriculture.

FOODSTUFFS DIVISION

The foodstuffs division maintains active contact with approximately 50 national foodstuffs trade associations and several hundred local organizations. In addition to the usual statistical service furnished the trades by commodity divisions, a number of trade information bulletins giving information on foodstuffs have been issued.

Four foodstuffs specialists are detailed in Europe to prepare special surveys of the food situation and to maintain a regular monthly cable service. These cabled reports are received by more than 400 trade papers.

In the domestic field a survey has recently been completed which comprehends the entire market for canned food products. Detailed questionnaire returns have been tabulated to show personal reasons for and against the consumption of these products. In cooperation with the Interstate Cotton Seed Crushers Association detailed information is collected by bureau representatives on oil and oil-bearing products in the Far East.

In cooperation with the National Coffee Roasters' Association, the American Spice Trade Association, the Flavoring Extract Manufacturers' Association, and the Association of Cocoa and Chocolate Manufacturers, the foodstuffs division has arranged for the collection of reliable information on cocoa, spice, coffee, and vanilla through the offices of American consuls, trade commissioners, and commercial attachés.

HIDE AND LEATHER DIVISION

Close cooperation has been effected by the hide and leather division with trade associations, such as the Tanners' Council and associations of importers of hides and skins, of leather manufacturers, and of tanning extract manufacturers. The division, in cooperation with the commercial laws division of the bureau, assists the trade in the adjustment of disputes relative to foreign shipments; with special research and statistical information regarding foreign markets; and with investigation and counsel with respect to theft and pilferage, marine insurance, and ocean bills of lading. The primary purpose of the division is to facilitate proper preparation and distribution to the industry of information forwarded from Government agents abroad relating to raw hides and skins and markets for all forms of unmanufactured tanned leather and of extracts and other tanning materials.

Since the organization of the division the schedules for imports and exports of hides, skins, and leather have been gradually broken down into such details as to give the industry the most intelligent picture possible on which to base the purchase of raw stock and sales of leather for export. Immediately on release of the monthly figures on imports and exports by the customs, the hide and leather division furnishes each member of the industry with detailed statements of the exports and imports of hides, skins, and leather, by countries, for those classes which are of particular interest to the individual firm. Charts are also prepared annually showing the

statistical position as regards domestic kill and the importation of cattle hides and raw stock; domestic slaughter; production of leather; sales and exports of leather, such as goat and kid upper, calf and kip upper, sheep and lamb leather, and sole leather.

According to a fixed plan, questionnaires are sent out to the Government representatives abroad, calling for information which is basic as well as that which is of immediate value to exporters of leather in extending markets and to importers of raw stock in establishing a buying program.

In order to save unnecessary distribution of nonessential material, foreign market bulletins are published dealing with leather and raw materials. These contain in very condensed form current reports by cable, and lists of incoming material which is available to the trade on request.

A leather export manual is being prepared, covering each country in the world which offers a potential market for American leather. This manual will contain information on the markets for five principal types of leather and is designed to be a ready reference book for executives and export managers.

The division is now working with the cooperating committee on the following: (*a*) Foreign raw stock improvement; (*b*) organization of local leather export manager groups; (*c*) combination on the part of tanners for better utilization of foreign agents; (*d*) a plan to encourage the sales of smaller lines of leather, such as fancy, bookbinding, bag, case and strap, and harness; (*e*) tariff information relating to hides and leather; (*f*) advertising American leather abroad.

With the assistance of the committee the division has begun comprehensive work in the conservation of domestic raw hides and skins. This has led to the formation of an interdepartmental committee selected from the Department of Agriculture and the Department of Commerce. The first conference with representatives of about 20 groups, ranging from the farmers to the shoe manufacturers, was held on April 19, with the presence and cooperation of the Secretaries of Agriculture and Commerce.

The division, in cooperation with the Quartermaster Corps of the War Department and the Tanners' Council of America, assisted in bringing the industry into cooperation with the procurement planning. This resulted in the organization of a permanent committee by the Tanners' Council to confer with the representatives of the Quartermaster Corps and representative of the division.

INDUSTRIAL MACHINERY DIVISION

The industrial machinery division endeavors to give thoroughly practical assistance on almost any question that may develop in con-

nection with marketing machinery abroad. This division's cooperation with trade associations has been effective mainly through specially appointed committees. These committees, acting through the bureau, have been able to arrange for obtaining as nearly complete information as possible regarding the distribution methods by which machinery is marketed in foreign countries.

A unique example of the activities of these committees is found in the achievements of the committee appointed from the Association of Chemical Equipment Manufacturers. When foreign representatives of the State Department or of the Department of Commerce find some one interested in determining how to produce a given chemical product or in the equipment that might be required for its production, the committee furnishes the necessary information to the industrial machinery division to be forwarded to the inquiring party.

Studies attendant upon the economical shipping of machinery abroad and a complete survey of machinery dealers in foreign countries are among the accomplishments of the division. The industrial machinery division is primarily concerned with those types of machinery used in industrial enterprises of all kinds, including factories, mines, and the construction of engineering works.

IRON AND STEEL DIVISION

The iron and steel division has established its primary trade association contacts with producers of ferrous metals and their manufactures. The division also operates through the National Association of Manufacturers in cooperation with this organization's foreign bureau, and more lately with a special committee from the steel industry. The iron and steel division has endeavored to acquaint, as expertly as possible, the foreign field services of the Government with the technical aspect of the iron and steel and nonferrous metals industries in order that foreign markets for these products may be more scientifically analyzed. The division has also been instrumental in obtaining foreign contracts for American iron and steel manufacturers. Statistical data relating to iron and steel production and foreign trade of the more important industrial nations are translated and currently compiled from foreign government publications and made available to the trade. In addition to the usual statistical services, this division has prepared, for the information of American manufacturers, detailed reports on the methods of foreign production, wages, hours of labor, new inventions, competitive prices, and distribution methods. Trade associations have cooperated actively in distributing this information most effectively among their members.

MINERALS SECTION

The minerals section of the iron and steel division is concerned with nonferrous metals, their ores and manufactured products, nonmetallic minerals, petroleum, and coal. The section serves, on one hand, minerals and metals import houses and the consumer of raw materials which must be obtained abroad, and, on the other hand, those manufacturers who desire to secure foreign markets. There is also some demand from producers of nonmetallic minerals for assistance in securing foreign outlets.

In addition to the regular monthly statistics on foreign trade, the division publishes current commodity surveys and regular reports on individual markets and particular commodities.

These various services have been developed in cooperation with trade and export associations to meet particular problems outlined by the associations.

LUMBER DIVISION

The lumber division has established direct contact with more than a thousand lumber manufacturers and exporters and lumber trade associations. Particularly in the export field does the division cooperate with several of the Webb-Pomerene export associations in the lumber industry. Among its major activities has been the compilation of a complete lumber exporters' directory, in which more than 1,500 lumber concerns are listed. Familiarizing exporters with foreign lumber requirements and placing foreign importers and brokers in touch with exporters of American lumber have been additional activities of this division. The foreign trade in lumber is so intricate that the division has found it necessary to specialize in all subjects and phases of the trade as minutely as possible.

PAPER DIVISION

The paper division, in cooperation with the American Paper and Pulp Association, the News Print Service Bureau, the Paperboard Industries Association, and the American Newspaper Publishers' Association, is able to render to the entire industry current details on production, exports, and imports of all varieties of paper. Queries from foreign buyers which the division can not answer individually are sometimes referred to these associations for their attention. A recent instance concerns the desire of esparto producers in Spain and northern Africa to dispose of a part of their product in the United States, where paper manufacturers have recently become interested in this product. Through the existing cooperation with trade associations the matter was handled in a manner satisfactory to the foreign producers.

Many miscellaneous services of value regarding foreign competition and sources of raw material have also been supplied to paper manufacturers and exporters undertaking analysis of foreign markets for paper and paper products generally.

RUBBER DIVISION

In cooperation with the Rubber Association of America the rubber division's primary endeavor has been to enable the rubber industry to make full use of the bureau's facilities at Washington and abroad in the promotion of foreign trade in rubber manufactures. The division has also been instrumental in bringing the rubber association into more direct contact with many Government departments and bureaus. Successful efforts in cooperation with the Bureau of Standards have resulted in the standardization and simplification of tire sizes and types.

Special reports of the division include a survey of European markets for American rubber goods and a determination of the competition offered by European manufacturers to American products in other foreign countries.

SHOE AND LEATHER MANUFACTURES DIVISION

Direct contact with associations organized by the various allied industries has been accomplished by the shoe and leather manufactures division through conferences with officials and members of nine representative associations. As a result, advisory committees of representative manufacturers have been appointed to counsel the division in its trade-promotion work.

This division, through its contact with major associations, has arranged a system of regular monthly reports of trade conditions both at home and abroad; and with up-to-date material as a foundation, it is in a position to supply, upon request, advice concerning foreign markets, data requiring special research, or statistical analyses showing the trend of trade.

The division, through cooperation with the divisions of foreign tariffs, commercial laws, and commercial intelligence, has made available to the industry information concerning foreign tariffs, commercial laws, and commercial information regarding foreign firms and individuals in different parts of the world. It has also established a valuable card index file of basic and current information, including exports, imports, industry in general, factories, markets, and production, and also general subjects, such as competition, economic conditions, industrial activities, trade methods, and transportation, for all the important foreign markets, not only for boots and shoes but for all leather manufactures and closely related lines.

SPECIALTIES DIVISION

The specialties division was organized to promote foreign trade in tools and hardware; office appliances, fixtures, and supplies; musical instruments; jewelry; scientific instruments; optical and photographic goods; novelties; and many other types of miscellaneous manufactures not included in the spheres of the other commodity divisions. Because of the great variety of products handled by the specialties division it has been deemed particularly desirable to establish contacts with the trade mainly through trade associations. Such contacts have resulted in material benefit to specific groups of manufacturers and have enabled many of the industries concerned to obtain the foreign market information most needed and hitherto unavailable.

Among the trade associations with which the division is operating are the Music Industries Chamber of Commerce, the National Association of Office Appliance Manufacturers, and the Sanitary Potters' Association. The specialties division, in cooperation with trade associations, has accomplished much preliminary research regarding foreign markets as a basis for a complete analysis of foreign markets and competition.

The specialties division in collecting and disseminating information on foreign advertising has maintained close contact with the leading advertising associations, notably the American Association of Advertising Agencies, the Association of National Advertisers, and the Associated Advertising Clubs of the World; also with individuals in the group of export advertising agencies who are not organized.

MOTION-PICTURE SECTION

A motion-picture section has been created in the specialties division. This section endeavors to serve the motion-picture industry in maintaining and developing the exhibition of American motion pictures in foreign markets. As a means of doing this, close contacts have been formed with the Motion Picture Producers and Distributors of America (Inc.), and with the industry in general, and to them are sent reports received in the department from its 14 foreign offices and also from the more than 400 consular officers in the Department of State. These reports serve to keep the Department of Commerce, and through it the motion-picture industry, in touch with foreign-market possibilities and also with the activities of foreign competitors in their endeavors to limit the showings of American films within their borders. Many such reports appear in the motion-picture trade press, with which the section endeavors to cooperate, and also in special circulars, bulletins, and articles in Commerce Reports, the weekly publication issued by the Bureau of Foreign and Domestic Commerce.

In cooperation with the commercial intelligence division the motion-picture section is in a position to furnish lists of producers, distributers, and exhibitors of motion pictures in all foreign markets, and lists of theaters. Through the division of foreign tariffs, furthermore, it can supply information as to the tariff treatment and duties on American films entering foreign countries, and through the division of commercial laws information as to foreign trademark, copyright, and taxation regulations.

A motion-picture trade commissioner is located in Europe, with headquarters in the Paris office. His function is to keep in touch with film conditions and to report on these matters to the section in Washington. In order to do this, he makes periodic trips through the various European countries. The results of his work are made available to the trade in the form of circulars and bulletins.

TEXTILE DIVISION

The textile division is engaged in the promotion of the foreign trade in textile raw materials and finished products, including cotton, wool, silk, and all miscellaneous fibers and fiber manufactures; furs and fur manufactures; and clothing in general. Approximately 25 per cent of our foreign trade falls within these classifications, and this division has served the textile and allied industries mainly through its close relationships with nearly 40 representative trade associations of producers, manufacturers, and merchants. These contacts have been effected directly, either through executives of the trade associations or through specially appointed committees.

Promotion of textile exports through the study of foreign markets for American textiles and special research on individual textile problems constitute the major concern of this division. The division has also assisted the textile industries in the solution of many major domestic problems, such as the disposal of war surplus textile stocks; the scientific treatment of Government textile purchase proposals; and the institution of tests for the determination of standards for specific textile items—the last in collaboration with the Bureau of Standards.

Statistical and other reports of the division include prevailing prices of textile materials in various producing and consuming markets of the world; statistics of price and volume on bristles, hennequin, manila fiber, and silk. The cotton movements in the principal consuming markets are reported monthly by cable and are disseminated to interested associations and individuals. Special reports are issued on world production and consumption of wool, rayon, and other textile fabrics.

Other activities include the circulation of specialized opportunities for foreign trade not covered in the regular routine; special informa-

tion describing conditions affecting American goods; information on foreign tariff agitation likely to affect American products; and prospective contracts to be secured from foreign governments.

DIVISION OF REGIONAL INFORMATION

The division of regional information, of which there are three sections—the Latin American, the Far Eastern, and the European—was created in recognition of the growing demand for an agency for the collection and dissemination of general commercial, economic, and financial information in regard to oversea markets.

The regional division, by reason of its immediate knowledge of conditions abroad and the underlying factors which influence trade conditions, is in a position to perform an important service to trade associations by anticipating difficulties which arise through lack of familiarity with commercial, economic, and financial conditions in foreign countries.

The principal channel for giving out the mass of information which reaches the Bureau of Foreign and Domestic Commerce is through its weekly publication, Commerce Reports, and probably the most widely known and most valuable service which the regional division furnishes to industry and trade is the publishing of the cable surveys which appear in each issue. The monthly surveys are followed at regular intervals by detailed analyses on the trend of business in each of the countries, studies being made of finances, crop conditions, industries, and whatever may affect production or purchasing power. Studies are also made of foreign trade statistics, and attention is given to all those elements which directly or indirectly affect or are likely to affect American enterprise in and trade with those countries. While every effort is made to present the material clearly and concisely, the trade association executive, through his wide knowledge not only of his own industry but of general economic and political conditions, is in a position to point out to the members of his association the significance of trade fluctuations and their possible effect upon business.

In addition to the information which gains publicity through Commerce Reports or other publications of the bureau, such as trade information bulletins, circulars, and trade letters, the regional division is ready at all times to furnish trade association executives of their clients with information upon general economic conditions in their territories, such as climatic conditions, native customs and preferences, the relation of the government to industry, labor conditions, living costs, general business trends, and other basic factors which are essential to familiarity with the commercial field.

FINANCE AND INVESTMENT DIVISION

The finance and investment division was established to study the public finances of foreign countries in connection with the sale of foreign securities in the United States and to investigate problems related to the investment of American capital in foreign enterprises. The division also handles questions of a general character relating to foreign-trade financing. A close contact is maintained with the American Bankers' Association, and the services of the division are being utilized by financial organizations interested in foreign loans and investments.

TRANSPORTATION DIVISION

This division has seven sections which deal with (*a*) shipping facilities, services, and rates; (*b*) shipping research; (*c*) transportation field surveys; (*d*) packing for shipment, both domestic and foreign; (*e*) communication and aviation in foreign countries; (*f*) foreign highway development; and (*g*) foreign railways. The division has established intimate contact with representative trade associations and stands in a position to assist almost any line of industry in connection with its foreign transportation and communication problems.

Five weekly mimeographed circulars are published by the division and may be obtained upon request, namely, Foreign Shipping News, Foreign Railway News, Foreign Highway News, Foreign Aeronautical News, and Foreign Communications News. The transportation division regularly issues a section in Commerce Reports, and, in addition, special bulletins are prepared by the various sections of the division.

FOREIGN TARIFFS DIVISION

The division of foreign tariffs is concerned primarily with the promotion of American export trade through the dissemination of all available data on the commercial policy, tariff, and allied trade phases of legislation of foreign countries. Specifically, this division informs and advises American exporters, through correspondence and publications, as to the conditions set by foreign governments with regard to duties, documents, consular and customs procedure and requirements, and all related official regulations, restrictions, and charges that pertain to the business of exporting.

The division also follows any internal charges or regulations, such as sales or luxury taxes, consumption or excise duties, quality standards or regulations, affecting imported goods or the sale or use of specific commodities. It carries its interest in American export products further by ascertaining the means of protecting the good will established by the sale of American products abroad, and by

warning of attempts at infringement or unauthorized registration of distinctive American trade-marks in foreign countries. While the chief concern of the division of foreign tariffs lies in American export trade, the division also keeps informed as to the duties, restrictions, and regulations of foreign countries upon their export products, particularly those which form the basic raw materials for American industries.

The services of the division, as enumerated above, lend themselves to a direct contact with American exporters as well as with trade associations. The latter can be of a very distinct service in bringing to the attention of any of their members who consult them on particular problems in this field the information and services which are available through the bureau. Trade associations can also perform important service as the channel through which wide and prompt dissemination can be given to an important change in the duties or regulations of a foreign country which may affect their particular line.

DIVISION OF COMMERCIAL LAWS

The division of commercial laws has as its particular task to gather and publish for the benefit of American commerce accurate information on the legal aspects of trading with foreign countries.

The division's service includes the collection of civil and commercial codes in force in foreign lands, the tabulating of current changes in foreign legislation, if of interest to American commerce, and the furnishing of information to American business men on any legal problem connected with marketing their goods abroad.

In its insurance section the division specializes in gathering data for the insurance issuer and the insurance user on those phases of insurance which enter into the transaction of foreign business, as, for instance, the liability of cargo carriers, marine insurance, fire insurance upon American-owned property abroad, suretyships in foreign countries, and the insurance of export credits.

The adjustments section renders practical aid to American firms having claims or complaints against foreign firms. In this work it is assisted by the foreign field force of the Department of Commerce and, through a special arrangement with the State Department, by American consular officers. Where American creditors have met difficulties in the protection of their interests because of unusual local conditions, the division has in many instances been able to render effective assistance. It has contributed to a marked improvement in foreign collection facilities, and has prepared a file of attorneys in practically all foreign cities of commercial importance who are competent to care for the interests of American business clients. The

division has done much to strengthen the position of the American legal adviser in foreign trade. Another of its achievements is an inquiry into the technique of agency agreements in foreign trade, which has resulted in a general scrutiny by American producers of these basic export merchandising contracts and the detection and correction of many perilous flaws.

To the trade association executive the division of commercial laws offers a valuable service in promptly bringing to the notice of each interested association any foreign legal news of general importance and in calling attention to noteworthy incidents bearing on the legal aspects of trading abroad. It also furnishes information to associations or their individual members facing foreign legal problems or difficulties. It has to this end an eminent corps of advisers at home and abroad, selected for a thorough knowledge of the laws of individual countries and committed to the care of American business interests.

The division has taken part in bringing about a more general adoption of arbitration as a method of settling commercial disputes and in preventing foreign trade evils, such as fraud or unwarranted repudiation of contract. It has worked for uniformity in foreign trade definitions, for more rational credit methods, and for a more efficient method of checking up complaints on the score of quality in foreign shipments.

The division does not include in its activities such foreign regulations as relate to the customs treatment of goods or to patents and trade-marks, all of which lie within the province of the division of foreign tariffs.

COMMERCIAL INTELLIGENCE DIVISION

For the purpose of providing American firms with reliable information concerning prospective buyers or agents all over the world, the bureau has created the commercial intelligence division, whose function is to compile and maintain an active world trade directory of foreign business firms. This directory is not published in book form, but is a card index that can be revised and added to as occasion demands. The data for this directory are being collected through the American Consular Service, with the cooperation of the commercial attachés and trade commissioners of the Department of Commerce.

From this directory are compiled commodity trade lists covering a given section of one country or an entire country. An effort is made to indicate the relative importance of the individual merchants by one, two, or three stars. Symbols after the name indicate the nature of the business, whether wholesale, retail, commission merchant, and agent, and the nationality of each firm is given. These lists

also indicate whether a firm specializes in one commodity; and if in more than one, what other commodities are handled.

The reports from which these trade lists are compiled contain much additional information on individual firms, such as capital invested, number of employees, references, and the general reputation of each firm. Reports containing such and similar data are on file for about 75,000 foreign firms.

The above-mentioned lists and reports on specific firms are available to American firms and individuals who have taken steps to have their names and interest in foreign trade recorded in the Exporters' Index.

DIVISION OF STATISTICS

The published statistical reports comprise the Monthly Summary of Foreign Commerce of the United States and the annual report, entitled "Foreign Commerce and Navigation of the United States." The latter is the complete statistical record of the foreign trade of the United States by commodities and countries. Many manufacturers are unaware that such statistics are available. Trade associations can, therefore, render a needed service by disseminating the official statistics among their members and pointing out their usefulness.

Statistics in greater detail than it is possible to publish in the Monthly Summary are given in the special monthly statistical statements which are distributed in mimeographed form. The detailed figures given in these special monthly statements enable trade association executives to keep in touch with fluctuations from month to month in movements of commodities in foreign trade and to make sure that any striking or unusual facts or tendencies are brought to the attention of the association members. By compiling the monthly figures for cumulative periods—either calendar, fiscal, or production years—the association executive can furnish the membership with yearly totals several months in advance of the time that it is possible for the division of statistics to compile annual totals for the entire list of commodities and have them printed in the annual reports for public distribution.

DIVISION OF STATISTICAL RESEARCH

The division of statistical research handles the general problems of economic research and statistical analysis which lie outside the scope of the specialized commodity divisions. Consequently, it has very little direct contact with business firms or trade associations, but serves them indirectly through technical assistance rendered through other divisions of the bureau and through the preparation of masses of statistical material.

The chief mediums for the dissemination of material compiled by the division of statistical research are the Commerce Yearbook and the Statistical Abstract of the United States, both of which are issued annually. The Commerce Yearbook, compiled by the division of statistical research in cooperation with all other divisions of the bureau, is a comprehensive survey of business conditions in the United States, containing descriptive text as well as a large number of statistical tables and graphs. The Statistical Abstract of the United States is a summary of all statistical material collected by the United States Government and also contains a considerable amount of supplementary data gathered by private organizations. The Statistical Abstract has been improved during recent years by condensation of existing material and by the addition of much new matter. It is the most complete and reliable publication of its kind, and familiarity with its contents will save time and labor to all persons requiring statistical information.

Preliminary plans have been made for the annual publication of a commerce yearbook of foreign countries, which will be similar in character to the volume issued for the United States. This additional volume will contain economic reviews for all important foreign countries, commercial statistics for each country, and summary tables showing comparable data for all countries.

Analyses of recent developments in the foreign trade of the United States and other countries are prepared from time to time by the division of statistical research. These appear in Commerce Reports or in the form of trade information bulletins.

The geographic section of the division has accumulated comprehensive files of maps, atlases, gazetteers, and postal guides which serve as the basis of the preparation of commercial maps.

The translation section of the division handles translations of many types of material for other divisions of the bureau, and a graphic expert furnishes technical advice concerning the preparation of charts and diagrams for the various bureau publications.

THE DOMESTIC COMMERCE DIVISION

The domestic commerce division was established in July, 1923, for the purpose of assisting in the elimination of waste in marketing through furnishing to American business commercial information based on original surveys and analyses of statistics and other data relating to any phase of business in the United States.

One of the major activities is that of a clearing house for market research data. An inventory of plans and accomplishments in this field has been compiled and published in a bulletin entitled "Market Research Agencies," which will be revised annually. By keeping in touch with the commercial and industrial organizations engaged

in promoting efficiency the division has been able to compile a comprehensive list of such organizations.

In cooperation with various trade organizations the division has instituted a series of studies on the problem of market possibilities and economic distribution methods.

Studies of the domestic market possibilities for electrical appliances and for paints and varnishes have been published, and similar studies for various other classes of goods are planned. Additional studies of sanitary ware and plumbing supplies and of canned foods will be published later; other commodities will be taken up as the trades indicate their interest in this service.

Trade-area studies, which avoid the errors inherent in using political subdivisions, such as the State or county, as the basis for marketing plans, form a second type of research. A city with its tributary territory may comprise only part of one county or may include several counties. The exact determination of such trading areas for various commodities is of prime importance. The Atlas of Wholesale Grocery Territories, delineating logical trading areas for the grocery trade, exemplifies this type of study, which will be followed by others.

On a larger scale surveys are being made of various regions which are practically homogeneous economic sections of the country. The purpose of these regional market surveys is to ascertain, through extended field work, the intangible factors of buying habits, as well as to find what commodities the various regions have to sell in exchange for the goods which they must buy. The chief considerations in making these surveys are natural divisions of territory due to physical features; natural resources and interdependence of industries; population similarities in numbers, race, occupations, and social life; and economic activities ranging from agricultural, mineral, and industrial production down to minor occupations. In addition, attention is given to primary and secondary distribution points, and to the transportation facilities which bind the districts together and link the outlying areas to the central markets. A study of the Philadelphia region has been published (Commercial Survey of the Philadelphia Marketing Area, Domestic Commerce Series No. 1), a survey of the Southeastern States is in press, a survey of the New England States is now in preparation, and a survey of the Pacific Southwest is in progress. These regional surveys are valuable aids in the process of exact analysis of markets. It is expected that eventually regional market surveys will be made of all important areas of the United States.

Chief among the activities promoting more efficient methods has been the publication of eight studies on best practices in retail trade,

the subjects of these being Budgetary Control, Retail Store Location, Measuring a Retail Market, Retail Store Planning, Education of a Retail Sales Force, Cooperative Retail Advertising, Department Leasing in Retail Stores, and Vehicular Traffic Congestion and Retail Business. Requests were received for over 50,000 copies of the first pamphlet, and the distribution of all the bulletins has exceeded 160,000 copies. Reprints have been published under one cover, and the entire group is now available as Domestic Commerce Series No. 9, Retail Store Problems. Other studies relating to efficient methods of distribution are Planning Salesmen's Territories, Warehousing and Distribution, and Packing for Domestic Shipments.

Since the organization of the division approximately 10,000 specific inquiries requiring research or practical suggestions based on an analysis of facts and the application of data found through research have been received and answered. This service is available to any person or concern and can be used to advantage as a supplement to individual efforts or resources.

DISTRICT AND COOPERATIVE OFFICES

To further the department's policy of keeping the closest possible contact with manufacturers and exporters and to facilitate the distribution of commercial information the Bureau of Foreign and Domestic Commerce maintains local offices in 17 American cities—Atlanta, Boston, Chicago, Des Moines, Detroit, Galveston, Houston, Louisville, Memphis, Minneapolis, New Orleans, New York, Philadelphia, Portland, St. Louis, San Francisco, and Seattle.

These offices are the service stations and distributing branches of the Bureau of Foreign and Domestic Commerce. They give aid and advice to the business interests in their respective communities in connection with sales and export problems. Their sole object is to expedite and facilitate the distribution of basic facts and figures to the American manufacturer or dealer for carrying on his export trade, and to give this service without the delay and inconvenience of writing to Washington and awaiting a reply.

The bureau has in effect arrangements with certain representative chambers of commerce whereby those organizations are designated as cooperative offices of the bureau. These cooperative offices are supplied with complete files of the bureau's special and periodical publications, advance copies of the trade opportunity addresses, lists of importers and dealers in foreign countries, and so on. In general, these cooperative offices are in a position to furnish practically the same trade informative material as is available at the bureau's district offices.

The cooperative offices are located in 41 cities—Akron, Baltimore, Beaumont (Tex.), Birmingham, Bridgeport (Conn.), Charleston (S. C.), Chattanooga, Cincinnati, Cleveland, Columbus, Dallas, Dayton, El Paso, Erie, Fort Worth, Greensboro (N. C.), Indianapolis, Jacksonville (Fla.), Kansas City (Mo.), Keokuk, Lake Charles (La.), Los Angeles, Lowell, Milwaukee, Mobile, Newark (N. J.), Norfolk (Va.), Orange (Tex.), Pensacola, Pittsburgh, Port Arthur (Tex.), Providence (R. I.), Richmond (Va.), Rochester, San Diego, Syracuse, Tacoma (Wash.), Toledo, Trenton, Wilmington (Del.), and Worcester.

THE FOREIGN SERVICE

Mention has already been made of the foreign service of the Bureau of Foreign and Domestic Commerce. Up to the present time the department has established in the leading commercial centers of the world 45 offices with a total personnel of over 350. These offices are in charge of commercial attachés or trade commissioners, who have been selected on account of their thorough knowledge of commercial and industrial conditions and who are in a position to be of material service to American business men, as they are abroad for the sole purpose of promoting American foreign trade and protecting American commercial interests. They are Government officers, and therefore any service they may perform is free of charge to bona fide American business concerns.

The primary duty of these field officers is the investigation of foreign markets for American goods, and any trade organization which is interested in selling American goods abroad has this service at its command. Not only does the Department of Commerce secure general reports on the markets for American products, but it will, in cooperation with trade organizations, prepare detailed questionnaires, asking for such specific items as the prices at which foreign goods of a similar character are being sold in the foreign country, the conditions under which they are being marketed, lists of reliable and capable firms which might be in the market for those products, and other items on which information may be desired. These representatives are not only sources of information, but their services are available to reputable American firms and organizations for practical assistance.

Not infrequently American firms have difficulties with foreign Governments which are due to misunderstandings or failure to comply with regulations of various kinds, and the foreign representatives of the Department of Commerce have been able in such cases to render very material aid. In disputes occurring between American and foreign firms the field officer has frequently been able, through

his understanding of local conditions, to ascertain the facts in the case and to assist the parties in reaching an amicable understanding. Another practical service which the Foreign Service officers render to American business is the assistance which they are often able to give foreign salesmen of American firms in getting in touch with the proper person to effect sales.

The facilities of the Foreign Service of the Department of Commerce are available to trade associations. It is always advisable that contact with the field representatives be made through the office at Washington, where commodity and regional experts act as the intermediary for the prompt dispatch of information both to the field and to the industry. Where information or advice is urgently needed and is not available at Washington, official cable communication may be utilized, reply being received by mail or cable, as desired.

BUREAU OF STANDARDS

Trade associations are vitally concerned with the uniformity and correctness of measures in the countless transactions involving measurement in manufacture, sale, and use. The Bureau of Standards is the Federal agency in aid of trade from the aspect of standard weights and measures.

During the last 25 years standardization has become an outstanding factor in promoting industrial efficiency. How well a machine acts depends upon how well the parts are designed and measured to fit. The Bureau of Standards is the agency of the Department of Commerce to promote standardization—which is service set to measure.

The useful service of the bureau has its origin in seven words of the Constitution, which gave Congress the power to "fix the standards of weights and measures." The writers could not have foreseen that measures would have to be provided for electricity, radium, light, and radio; yet to-day the watt, the curie, the candle, and radio-frequency or wave length are as needed in new fields as the yard, gallon, and pound in the fields where these units apply. To-day there are in use scores of kinds of measures which were then unknown.

STANDARDS

1

Standards of measurement.

Reference and working standards for measurements of all kinds, including fundamental and derived *standards of measurements* for expressing the quantitative aspects of space, time, matter, energy, and motion, and of their interrelations.

By definition, specification, or material standard, covering, for example, length, area, and volume; mass, weight, density, and pressure; heat, light, electricity, and radioactivity; including for each the quantity, flux, intensity, density, etc.

2

Standard constants.

Natural standards or the measured numerical data as to materials and energy, known as physical or *standard constants*, that is, the fixed points or quantities which underlie scientific research and industrial processes when scientifically organized.

Mechanical equivalent of heat, light, electricity, and gravitation; specific densities; viscosities; melting and boiling points; heat capacity; heats of combustion; velocity of propagation of light; conductivities of materials to heat and light; electrochemical and atomic weights; and many similar magnitudes determined experimentally with maximum precision and referred to fundamental standards of measure.

3

Standards of quality.

Specifications for material (by description, sample, or both), known as *standards of quality*, fixing in measurable terms a property or group of properties which determine the quality.

The numerical magnitude of each constituent property pertinent to the quality involved, and specific magnitude in units of measure of such significant factors as uniformity, composition, form, structure, and others.

4

Standards of performance.

Specification of operative efficiency or action for machines and devices, known as *standards of performance*, specifying the factors involved in terms susceptible of measurement.

Numerical statement of speed, uniformity, output, economy, durability, and other factors which together define the net efficiency of an appliance or machine.

5

Standards of practice.

Codes and regulations impartially analyzed and formulated after study and experiment into *standards of practice* for technical regulation of construction, installation, and operation, and based upon standards of measurement, quality, and performance.

Collation of standard data, numerical magnitudes, and ranges of the pertinent factors defining quality, safety, economy, convenience, and efficiency.

PURPOSE

1

To *aid accuracy in industry* through uniform and correct measures.
To *assist commerce in size standardization* of containers and products.
To *promote justice in daily trade* through systematic inspection and regulation.
To *facilitate precision in science* and *technologic research* through calibration of units, measures, and instruments involved.

2

To *serve* as an *exact basis* for scientific study, experiment, computation, and design.
To *furnish* an *efficient control* for industrial processes in securing reproducible and uniformly high quality in output.
To *secure uniformity of practice* in graduating measuring instruments, or in compiling tables for standards of quality and performance, and wherever such uniformity is desirable.
To *aid laboratory research by reducing errors* and uncertainty caused by use of data of doubtful accuracy.

3

To *secure high utility* in the *products* of industry by setting an attainable standard of quality.
To *furnish a scientific basis* for *fair dealing* to avoid disputes or settle differences.
To *promote truthful branding* and *advertising* by suitable standards and methods of test.
To *promote precision* and *avoid waste* in science and industry by affording quality standards by which materials may be made, sold, and tested.

4

To *clarify the understanding* between maker, seller, buyer and user as to operative efficiency of appliances and machines.
To *make exact knowledge the basis* of the buyer's choice.
To *stimulate and measure mechanical progress.*

5

To *furnish* for each utility a single *impersonal standard* of practice as a *basis for agreement* of all interests, clearly defined in measurable terms.
To *insure effective design* and *installation* of utilities of all kinds.
To *promote safety, efficiency,* and *convenience* in the *maintenance* and *operation* of such utilities.
To *secure uniformity of practice* where such is practicable, and *effective alternates* in other cases.

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SCIENTIFIC AND TECHNICAL DIVISIONS

The natural divisions of the Bureau of Standards [12] work include heat, light, electricity, weights and measures, chemistry, and a series of technical divisions—mechanics and sound, fibrous organic materials (paper, textiles, rubber, and leather), metallurgy, ceramics, cement and lime, building and housing, and simplifications. Each division (except the last two) maintains facilities for research and testing and is equipped with experts who develop standards and methods of measurements and standards of quality, performance, and practice. The standards of quality are prepared in cooperation with other departments of the Government through technical committees advisory to the Federal Specifications Board.

WEIGHTS AND MEASURES

The first division established was inherited from the old office of standard weights and measures. There are maintained the fundamental standards of length and mass and working standards of volume, density, and time. Standards are compared and certified for manufacturers and for State governments. Researches are conducted on fundamental problems such as the production of high precision gauges and methods of verifying them. The division also maintains traveling test cars for testing the master scales on which the $4,000,000,000 in freight rates are determined. This division cooperates with the national organization of master watchmakers by testing watches adjusted by candidates for its certificate.

ELECTRICITY

The electrical division maintains the national standards for electricity, conducts research, and is concerned with the improvement of electrical measurements, the testing of electrical instruments and working standards for manufacturers, testing laboratories, research institutions, public utility organizations, and other interests. Special sections are devoted respectively to the measurement of resistance, inductance, and capacity; photometry; electrochemistry; radio; public utility standards; storage batteries and dry cells. The radio laboratory maintains facilities for aiding broadcasting stations to maintain their allotted frequencies and for standardization research vital to the success and progress of radio communication.

HEAT AND POWER

The measurement of heat and temperature is highly important to many industries which require controlled heat in production, and

[12] A descriptive list of all publications of the Bureau of Standards may be obtained free upon request from the Superintendent of Documents, Government Printing Office, Washington, D. C. (Bureau of Standards Circular No. 24, with supplement.)

the bureau's heat laboratory serves a most important function in standardizing heat-measuring instruments. The temperature range over which measurements have been made by the bureau is from almost absolute zero to the temperature of the sun. The higher temperatures are measured by optical pyrometers. The bureau has prepared a descriptive publication on pyrometric practice, which may be procured from the Government Printing Office by those interested. The heat division also conducts researches on the performance of internal-combustion motors used in airplanes, airships, and automobiles. It maintains altitude chambers in which high-altitude conditions are reproduced for engine tests. Studies are made of lubrication, carburetion, ignition, and braking speed. Apparatus has been designed for measuring automatically a score of factors essential to efficient automobile operation.

LIGHT AND OPTICS

This division is equipped to measure light and color, the energy of radiation, and the characteristic behavior of light with respect to transmission, reflection, and absorption. Wave lengths of light are determined with the highest precision and are accepted as standards throughout the world. In fact, the most accurately ruled scales were produced by the use of light waves directly and without a material standard of light. In this division check tests are made of all imported sugars to insure the accuracy of the analyses at the port laboratories. One laboratory is devoted to the study of the behavior of the atoms, and the relation of such behavior to the structural changes in the atoms. One section is devoted to the study of optical instruments. The radiation section has been peculiarly fruitful in results of direct and important economic value.

CHEMISTRY

The chemistry division has worked on standards of purity and composition, standard methods of analysis, and tests which control quality through standard specifications. This division has independent problems of chemical standardization and it also works jointly with other divisions on research problems of the most varied kind, for nearly every research has a chemical aspect. The division issues certified analyzed standard material for use in standardizing instruments, measuring the accuracy of methods of analysis in the industries, or verifying the carefulness of industrial chemists. The purest platinum ever produced was refined in this laboratory.

MECHANICS AND SOUND

The industrial importance of engineering is nowhere better exemplified than in the problems investigated by this division. It is

equipped with the largest and most precise testing machines made, with three wind tunnels, and with a large equipment of special machines and research facilities. Many and important researches have been completed for perfecting aviation and for the design of bridges and structural columns. Many hundreds of tests have been made to give the designing engineer the accurate data essential to safe and economical construction. The section of sound has done notable work on the design of auditoriums with reference to soundproofing and acoustics.

FIBROUS ORGANIC MATERIALS

Technical studies of paper, textiles, rubber, and leather are made, including the measurement of properties with special reference to suitability and durability for particular uses. In this laboratory were developed the method of making currency paper which added 50 per cent to the useful life of paper money, and methods of making mail sacks with a saving of some hundred thousand dollars for one department alone. Rubber tires are tested for durability before acceptance. Technical problems are undertaken for the paper industry, and the special industries concerned have cooperated most effectively in standardization.

METALLURGY

A special division correlates the bureau's work on metals and conducts research on vital problems of metallurgy. The aim is to be able to produce any alloy, to test its properties and uses, and to develop methods for improving metals by suitable treatment—in short, to make metals already vital to industry more useful and durable. This division is equipped with a complete rolling-mill outfit and can produce shapes, such as rods, bars, and sheets, of any metal. Iron of the highest purity was produced in this laboratory.

CERAMICS

The improvement of clays, clay products, cement, lime, and stone, and particularly optical glass, are the functions of the ceramics division. Its work has resulted in notable advances in these industries. Here optical glass is produced, the only place in America where such glass is now being manufactured. By suitable blending and treating of American clays the American clay industry has been enabled to equal clay products formerly made exclusively of foreign clays. The division is equipped with a cement mill in which experimental production of cement can be conducted under complete measured control.

COOPERATIVE RESEARCH

Thirty-six national organizations have research associates in the bureau laboratories engaged in experimental research. This work began with the act of Congress which authorized the Government to permit the use of its facilities for study and research. Out of this has grown to its present size and usefulness a unique system of cooperative research. The cooperative relations between the Bureau of Standards and American industry are well shown by its research associate plan. (See p. 62.)

Through this plan the bureau links science and industry under their joint auspices in a purely helpful and constructive plan of experimental research. The scientific laboratories of the bureau are unsurpassed in supplementing research facilities of those conducting research and in affording facilities for those who have none. It has some 60 specialized laboratories, each equipped with modern facilities and a trained staff ready to focus cooperative effort on industrial problems. All these are at the service of research associates.

The research associate staff comes from various industries and sciences, and is made up of trained physicists or chemists, industrial experts, technologists, and skilled artisans. A metallurgical company maintains chemists to develop new methods of analysis. A national textile organization has research associates busy on fundamental problems for the hosiery industry, results of which are reported already to have saved $28,000,000. In making an exact science of color, means are found for defining any tint or shade of any hue so that it can be identified and produced exactly from definition. A leading color laboratory maintains research associates for experimental color research at the bureau. The group of technicians interested in walk-way surfaces, their efficiency and safety, maintains an associate at the bureau who has developed apparatus for measuring the slipperiness of walk ways and has made a complete series of measurements on types of shoe soles in common use.

A list of typical results obtained through cooperative research shows some 75 subjects ranging from the structure of atoms and the rays characteristic of the chemical elements, to building construction and packing-box standardization. They comprise fundamental science and its applications to very practical problems of industry.

The interesting array of researches includes also such subjects as microstructure of Portland cement and metals; prevention of corrosion and tarnish; strength, absorption, and freezing resistance of hollow building tile; dimensional changes in dental amalgams; malleability of nickel; variations in glass caused by heat treatment; bulking of pigments and liquids used in paints; sound-insulating properties of partition walls; properties of gypsum tile and the effect

of composition on the properties of gypsum plasters; relative merits of cotton and jute cement sacks; the properties of artificial silk and the cleaning of silk fabric.

Progress is reported to the industries monthly through the director. Research achievements are for the immediate benefit of the entire industry. Their prompt use is vital. They may be broadcast through the technical journal of the industry or through bureau publications.

One aspect not yet fully appreciated is the value of having the research associate who is stationed at the bureau serve as a contact officer of an industry. Such service enables the industry to make more effective use of the bureau, and in turn aids the bureau in its active cooperation with industry.

A list of associations cooperating with the Bureau of Standards (see p. 64) shows a wide variety of technical subjects in which the bureau is cooperating. A few may be cited: Tests of structural materials welded by the electric arc in place of the noisy riveting process; the formulation of methods of determining, for the American Medical Association, the power of spectacle lenses; signal service batteries for the American Railway Association. Work is in progress on the measurement of hardness for the American Society for Steel Treating; on battery specifications for the American Electro Chemical Society; on the best pouring temperatures for brass for the American Foundrymen's Association. The bureau is represented on 56 special committees on the standardization of projects alone. For the American Society of Mechanical Engineers numerous laboratory investigations are in progress, such as problems in lubrication, cutting and forming metal, metal springs, and the properties of steam. For the Gas Products Association cooperative work is in progress on screw threads for cutting and welding torches. These illustrate somewhat the variety of cooperative research projects under way at this time—projects sustained in part by trade associations and productive of profit to the industries which they represent.

TESTING

A million and a half lamps for Government use are inspected at the factories by the bureau. Cement for national construction projects is tested at the mills. Nearly half of the bureau's activities are devoted to the maintenance of test standards and facilities, research on test methods, and actual testing. Compared with the volume of Government purchases and the utility of such tests, the cost is small.

Testing is a primary service of the bureau, to meet demands for which private testing laboratories are not equipped. The bureau

aids those establishing local testing laboratories by certifying their standards and by advice as to methods, appliances, and procedure. Bureau tests are made with a suitable degree of precision in each case. Short-cut methods are developed for speed and accuracy, sometimes automatic or self-recording. Test certificates and reports serve as evidence of accuracy or quality and as the basis of competitive award or acceptance of deliveries.

The diversified tests for the Government and the public are described in a series of circulars published by the bureau. The annual statistics are given in the annual report of the director. These publications are obtainable upon request.

DIVISION OF BUILDING AND HOUSING

The division of building and housing was established in 1921 to cooperate with the various branches of the construction industry in solving outstanding problems. Among these were methods of stabilizing building activity, development of better and more economical building codes and other standards, improved coordination of public and private construction, more rational development of urban areas through zoning and city planning, improved housing, and encouragement of home ownership. (See pp. 164–165.)

One of the chief functions of the division has been to collect and to make available basic statistics relating to building activity and to the production, consumption, and stocks of building materials. It publishes periodic reviews of construction activity, collects each month, in conjunction with the Bureau of the Census, retail prices of building materials as paid by contractors in about 50 cities, and makes special reports from time to time. The division answers many inquiries from companies, cost accountants, and trade associations, and is able to put them in touch with the statistics from nongovernmental as well as governmental sources.

The building code committee's six published reports deal with small-dwelling construction, plumbing, masonry walls, allowances for live loads in design, working stresses for timber, steel, concrete, and cast iron, and arrangement of building codes. Recommendations of the committee have been used in formulating or revising codes in more than 80 cities and in enactments adopted in 7 States.

In the field of city planning and zoning, publications include A Zoning Primer, A Standard State Zoning Enabling Act (which has been utilized in framing legislation in at least 28 States), A City Planning Primer, A Standard State City Planning Enabling Act, and reports listing the cities which have adopted zoning ordinances and the laws of the various States relating to city planning and zoning. The city planning enabling act, when adopted by State

legislatures, will permit municipalities that comply with its provision to create city planning commissions, control the layout of new subdivisions, prevent building in the bed of mapped streets, and authorize the creation of regional planning commissions for a city, or group of cities, and the surrounding territory.

To encourage home ownership on a sound economic basis is one of the division's principal aims. The work on building codes and city planning and zoning all tends to make possible a higher percentage of home ownership, and it is hoped that it will help to stabilize residential building and to improve its quality.

A booklet entitled "How to Own Your Home," prepared in the division, has had a sale of more than 300,000 copies and has been extensively quoted in the press. The division does not prepare house plans, but cooperates with the Architects' Small House Service Bureau, an organization controlled by the American Institute of Architects.

The division has also given substantial assistance to Better Homes in America, an educational organization with headquarters in Washington, which aims, among other things, to make information from Government sources available to several thousand voluntary "better homes" committees throughout the country.

BUREAU OF MINES

The Bureau of Mines is carrying on various investigations in technology, health and safety, and the economics of the mining, preparation and utilization of minerals (coal, oil, metals, and nonmetallics), the results of which are important to the mining, metallurgical, and mineral industries, as well as to the manufacturers and the users of mineral products.

TECHNOLOGY, HEALTH, AND SAFETY

In its technologic and safety work the bureau cooperates chiefly with other Federal agencies, State governments, universities, technical societies, civic associations, and the more technical of the trade associations concerned. Instances of research work conducted by the bureau in cooperation with an association of operators in the industry concerned are the study of methods of quarrying and preparing slate, which has developed ways for reducing the amount of waste in the slate industry, and similar studies in the limestone and fluorspar industries.

ECONOMICS OF MINERAL INDUSTRIES

Subsequently to the transfer of the Bureau of Mines from the Department of the Interior to the Department of Commerce, an economics branch was established in the Bureau of Mines. This branch,

which is engaged primarily in the study of the economic factors affecting the production, distribution, marketing, and consumption of minerals, is composed of the division of mineral resources and statistics (transferred from the United States Geological Survey), the coal division, the division of minerals and metals, and the division of petroleum economics, originating with the activities and personnel of the coal and minerals divisions, transferred from the Bureau of Foreign and Domestic Commerce.

Cooperation is maintained by the economics branch with other governmental agencies engaged in the collection of supplementary data or in the interpretation and application of information collected by the branch.

COAL DIVISION

On January 1, 1926, there was established in the Bureau of Mines a coal division to handle the work of the Department of Commerce on the economics of coal pertaining to the domestic industry. The work of the division relates particularly to the various industrial and trade problems of the industries producing, marketing, and distributing coal and its fuel by-products. The division maintains contact with industry through national associations, such as the National Coal Association, American Mining Congress, American Institute of Mining and Metallurgical Engineers, American Wholesale Coal Association, National Retail Coal Merchants' Association, local associations of producers, and individual companies. In matters of transportation the division cooperates with the American Railway Association and with the various coal-carrying railroads.

PETROLEUM ECONOMICS

Studies relating to petroleum economics, including the collection of statistical information on the production and distribution of crude oil, natural gas, and the various petroleum products, form a major portion of the work of the petroleum economics division. In this work the division cooperates directly with all the major pipe-line companies in the collection of information relating to the production of crude oil and with more than 330 refineries in preparing the monthly reports on refinery runs and the production of petroleum products. Formal cooperation has been established with the American Petroleum Institute in the collection of fundamental statistical data relating to the distribution and consumption of the major petroleum products, and informal cooperation is maintained with the American Association of Oil Burner Manufacturers in a survey of the manufacture of domestic, commercial, and industrial oil burners and the consumption of oil in domestic heating.

MINERALS AND METALS

The division of minerals and metals was created as a part of the economics branch to carry on studies relative to the distribution of minerals in nature, with special reference to the commercially important minerals and metals in the United States, and a comparison of foreign supplies; changes in technical treatment; special uses; and factors governing production, consumption and price, or any other economic phase of the mineral and metal industry.

In these studies the division cooperates with scientific and research societies, domestic and foreign trade associations, engineering and technical organizations, colleges, and individuals who are looking to the advancement of the mineral and metal industry.

MINERAL RESOURCES AND STATISTICS

In its collection and presentation of economic and statistical data, the division cooperates, both formally and informally, with trade associations allied with the mineral industries. These relations are maintained for the most part by contact of the commodity specialists and statisticians with the secretaries and other officers of these associations. Thus, there is an informal exchange of information and other mutual assistance, such as exchange of lists of operators, news of the industries, and advice as to questionnaire forms. Among the chief purposes of these contacts is the determination of the scope and form of presentation of results of statistical inquiries undertaken by the bureau. To a limited extent, statistical material assembled by trade associations is compiled, analyzed, and embodied in the division's reports.

PATENT OFFICE

The Patent Office takes up with professional and business associations matters coming within its jurisdiction—patents, trade-marks, labels, and prints. The law associations, such as the American Bar Association, the American Patent Law Association, the Patent Law Association of Chicago, and the similar associations in other cities, all cooperate with the Patent Office. Many other organizations, including trade and commercial associations, also cooperate with this governmental agency. At the present time the patent and trade-mark section of the American Bar Association is working on a new national trade-mark statute and is keeping the Patent Office informed of its activities.

EXCERPTS FROM THE REPORTS OF THE ATTORNEYS GENERAL, 1892–1926

As indicating the trend of the Government's policy toward monopolies and restraints of trade, and more lately its policy toward trade associations, there are given below excerpts from the annual reports of Attorneys General relating to prosecutions under the Sherman Antitrust Law:

W. H. H. MILLER, 1892

Under the "Act to protect trade and commerce against unlawful restraints and monopolies," approved July 2, 1890, proceedings, among others, have been taken in the courts during the past year as follows:

In the district court of Massachusetts proceedings were instituted against a number of persons alleged to have combined for the purpose of monopolizing the trade or commerce among the several States under the name of the Distilling & Cattle Feeding Co. A special agent of the department spent many weeks hunting up the facts pertaining to the business of this concern, and those facts were, by the United States attorney in Boston, laid before the grand jury, and indictments were found against parties interested in the enterprise.

One of these indictments was quashed for insufficiency. Another indictment obtained is now pending in the circuit court, its sufficiency undetermined by that court, though in hearings had upon arrests made in Ohio and New York it was held that the facts set forth in the indictment, which, it is believed, are the facts as they will appear upon the proof, did not bring the case within the terms of the antitrust statute or constitute a crime. Other indictments are also pending in that district upon which, among others, are presented questions as to the constitutionality of that statute.

Proceedings also have been commenced in the eastern district of Pennsylvania under the same law by bill in equity against parties alleged to have combined for the purpose of monopolizing the trade in refined sugars between the different States of the Union and the United States and foreign nations. In the last-named suit an answer has been filed, and the evidence is now being taken.

A suit has also recently been commenced in the Circuit Court of the Eastern District of Louisiana, in equity, against parties alleged to have combined by threats, intimidation, and violence, to hinder and restrain interstate and foreign commerce in New Orleans and throughout the country, the purpose of said bill being to obtain an injunction against such illegal combination and conspiracy, and an order to show cause in the premises has been issued, returnable on the 26th of November, 1892.

Investigations have been made in reference to other alleged violations of this law by other alleged combinations of persons and corporations. As was to have been expected, it has been found in all cases investigated, that great care and skill have been exercised in the formation and manipulation of these combinations so as to avoid the provisions of this statute, and, as has been

seen in the proceedings growing out of the indictments in Massachusetts, these efforts have not been without success. It is hoped, however, that in the cases commenced the validity of this statute and its applicability to the abuses which have become very common in the business of the country, under the name of trust, may be demonstrated. If so, the investigation made and the evidence accumulated in cases where no proceedings have been commenced, will be valuable.

RICHARD OLNEY, 1893

In the first place, the subject matter upon which the statute operates and alone can operate is "any part of the trade or commerce among the several States or with foreign nations." There is, therefore, necessarily exempt from its provisions all that immense mass of contracts, dealings, and transactions which arise and are carried on wholly within State lines and are wholly within the jurisdiction of a State. On another ground, namely, that special and exclusive legislation has been enacted respecting them, railroad companies engaged in interstate transportation have been held not to be within the purview of the statute.

In the next place, the subject matter of the statute as thus limited is to be protected from (1) monopolies, (2) attempts to monopolize, (3) combinations or conspiracies to monopolize, and (4) contracts, combinations, or conspiracies, in form of trusts or otherwise, in restraint of trade or commerce. But as all ownership of property is of itself a monopoly, and as every business contract or transaction may be viewed as a combination which more or less restrains some part or kind of trade or commerce, any literal application of the provisions of the statute is out of the question. It is not surprising, therefore, that different judges who have been called upon to put a legal meaning upon the statute have found the task difficult and have generally contented themselves with deciding the case in hand without undertaking to construe the statute as a whole. To this there is one notable exception in a judgment given in the Circuit Court of the United States for the Southern District of Ohio, which deals with the statute thoroughly and comprehensively, and, coming from a judge who is now Associate Justice of the Supreme Court, must be regarded as entitled to the highest consideration. His conclusions, as briefly summarized, are: (1) That Congress can not limit the right of State corporations or of citizens in the acquisition, accumulation, and control of property; (2) that Congress can not prescribe the prices at which such property shall be sold by the owner, whether a corporation or individual; (3) that Congress can not make criminal the intents and purposes of persons in the acquisition and control of property which the States of their residence sanction; (4) that "monopoly," as prohibited by the statute, means an exclusive right in one party coupled with a legal restriction or restraint upon some other party which prevents the latter from exercising or enjoying the same right; (5) and that contracts in restraint of trade and commerce as prohibited are contracts in general restraint thereof and such as would be void at common law independently of any statute.

This exposition of the statute has not so far been questioned by any court, and is to be accepted and acted upon until disapproved by a tribunal of last resort. In view of it the cases popularly supposed to be covered by the statute are almost without exception obviously not within its provisions, since to make them applicable not merely must capital be brought together and applied in large masses, but the accumulation must be made by means which impose a legal disability upon others from engaging in the same trade or industry. Numerous suits under the statute, however, have already been brought—others

may be—and it is manifest that questions of such gravity, both in themselves and in respect of the pecuniary interests involved, ought not to rest for their final determination upon the decision of a single judge, however forcible and weighty. I have therefore deemed it my duty to push for immediate hearing a case involving those questions, and unless prevented by some unforeseen obstacle, shall endeavor to have it advanced for argument at the present term of the Supreme Court.

It should, perhaps, be added in this connection, as strikingly illustrating the perversion of a law from the real purpose of its authors, that in one case the combination of laborers known as a "strike" was held to be within the prohibition of the statute, and that in another, rule 12 of the Brotherhood of Locomotive Engineers, was declared to be in violation thereof. In the former case, in answer to the suggestion that the debates in Congress showed the statute had its origin in the evils of massed capital, the judge, while admitting the truth of the suggestion, said:

> The subject has so broadened in the minds of the legislators that the source of this evil was not regarded as material, and the evil in its entirety is dealt with. They made the interdiction include combinations of labor as well as of capital; in fact, all combinations in restraint of commerce, without reference to the character of the persons who enter into it.

RICHARD OLNEY, 1894

Nothing new on this subject since report for previous year.

JUDSON C. HARMON, 1895

Among the cases of general interest decided since the last annual report of the Attorney General several deserve mention.

In United States *v.* E. C. Knight Co. (156 U. S. 1), which was referred to in the last report as having been argued and submitted, a construction was given to the Sherman antitrust law. It was held that the purchase of certain sugar refineries in the city of Philadelphia on behalf of the so-called Sugar Trust was not a violation of the provisions of that law, although a virtual monopoly of the business of refining sugar resulted, because interstate commerce was not thereby directly affected. Combinations and monopolies, therefore, although they may unlawfully control production and prices of articles in general use, can not be reached under this law merely because they are combinations and monopolies, nor because they may engage in interstate commerce as one of the incidents of their business.

In Pollock *v.* Farmers' Loan and Trust Company (157 U. S. 427) certain provisions of the law imposing a tax on incomes were held to be invalid because in contravention of the Constitution, and, on rehearing (158 U. S. 601), the invalidity of such provisions was held to destroy the entire scheme for the taxation of incomes.

The sentences of imprisonment in the county jail for terms varying from three to six months imposed on Eugene V. Debs and three other persons for contempt in disobeying the orders of injunction issued by the circuit court at Chicago during the great railway strike July, 1894, were upheld in the case In re Debs (158 U. S. 564) and principles established which are of the highest value and importance. The jurisdiction of the courts to issue and enforce injunctions against interference with interstate commerce and the passage of the mails was fully maintained, and it was held that the action of the courts in such cases is not open to review on habeas corpus.

JUDSON C. HARMON, 1896

On January 7, 1896, the House of Representatives, by resolution, asked me for a report concerning the action of the department under the act of July 2, 1890, commonly called the antitrust law, and for suggestions whereby its efficiency might be improved. In response thereto, on February 8, 1896, I had the honor to submit a report, which was afterwards printed as Executive Document No. 234, Fifty-fourth Congress, first session. As this subject is one concerning which public interest appears to continue unabated, I take the liberty of repeating what I then said by attaching that report hereto as Exhibit 1.

EXHIBIT 1. ENFORCEMENT OF LAWS AGAINST TRUSTS, COMBINATIONS, ETC.

DEPARTMENT OF JUSTICE,
Washington, D. C., February 8, 1896.

The House of Representatives:

In compliance with the resolution of the House of Representatives of January 7, 1896, requesting me to report what steps, if any, I have taken to enforce the law of the United States against trusts, combinations, and conspiracies in restraint of trade and commerce, and what further legislation, if any, is needed, to protect the people against the same, I have the honor to say:

1. Many complaints have been made against alleged trusts, combinations, and monopolies which, in so far as they appeared to relate to matters within the jurisdiction of the Federal Government, I have endeavored to investigate as well as the means at my disposal permitted. Some such investigations are now in progress.

2. Two actions are now pending based partly or wholly on alleged violations of what is known as the Sherman Act. They both relate to agreements among interstate carriers.

3. The question, "What further legislation is needed to protect the people?" is one of general policy, and not one of law, which therefore does not pertain to my department. I assume, however, that Congress merely desires me to point out such defects in the present law as experience has shown to exist. I accordingly submit the following suggestions:

(*a*) The act of July 2, 1890, commonly called the Sherman antitrust law, as construed by the Supreme Court (see p. 13 of my annual report), does not apply to the most complete monopolies acquired by unlawful combination of concerns which are naturally competitive though they in fact control the markets of the entire country, if engaging in interstate commerce be merely one of the incidents of their business and not its direct and immediate object. The virtual effect of this is to exclude from the operation of the law manufacturers and producers of every class, and probably importers also.

As a matter of fact, no attempt to secure monopoly or restrain trade and commerce could possibly succeed without extending itself largely, if not entirely, over the country; so that while engaging in interstate commerce may not be the direct or immediate object it is a necessary step in all such undertakings. While Congress has no authority in the matter, except what is derived from its power to regulate commerce, the States alone having general power to prevent and punish such commercial combinations and conspiracies, Congress may make it unlawful to ship from one State to another, in carrying out or attempting to carry out the designs of such organization, articles produced, owned, or controlled by them or any of their members or agents.

The limitation of the present law enables those engaged in such attempts to escape from both State and Federal Governments, the former having no authority over interstate commerce and the latter having authority over nothing else. By supplementing State action in the way just suggested Congress can, in my opinion, accomplish the professed object of the present law.

(*b*) Several of the circuit courts have held that the act of July 2, 1890, which used general terms, with no attempt to define them, made nothing unlawful which was not unlawful before, but merely provided punishment for such agreements and conspiracies against trade and commerce as the courts, by the rules of common law, have always refused to enforce between the parties. The result has been great doubt and uncertainty and the failure of the law to accomplish its purpose.

If it is proposed to persist in that purpose, I suggest an amendment which shall leave no doubt what is meant by monopolies, by attempting to monopolize, and by contracts, combinations, and conspiracies in restraint of trade and commerce.

It should not be difficult to distinguish legitimate business enterprises carried on by individuals or by associations of individuals in bona fide partnerships and corporations, however great and successful they may become by superior capacities, facilities, or enterprise, from combinations of rival concerns, no matter under what form or disguise, whose object is to stifle competition and thereby secure illicit control of the markets. The real nature and design of the organization would always be a question of fact. The courts have no difficulty in deciding the question when it arises between the parties. They would have none in deciding it as between the Government and the parties.

(c) The present law should contain a provision like that of the interstate commerce law to prevent the refusal of witnesses to answer on the ground of self-incrimination. This defect has been severely felt in all attempts to enforce the law.

The sufficiency of this feature of the interstate commerce law is involved in a case recently argued and submitted to the Supreme Court, which will probably be decided during the present session of Congress. If the decision be in favor of the Government, a similar clause should be added to the present law against monopolies, etc.

I also suggest the propriety of making the penalties of the law applicable only to general officers, managers, and agents, and not to subordinates. The latter could not then decline to testify, and sufficient evidence can usually be obtained from them.

The difficulty of obtaining proof on account of the cause just mentioned might also be diminished, if not removed, by enacting as a rule of evidence that the purchase or combination in any form of enterprise in different States which were competitive before such purchase or combination should be prima facie evidence of an attempt to monopolize. This would put the parties to the necessity of explanation, which would supply the information desired.

A similar provision should be made with respect to well-known methods of doing business throughout the country which are designed to deprive dealers of liberty of trade and compel them to become instruments of commercial conspirators.

The adoption of such a rule of evidence might give life to section 7 of the present law, which permits civil actions for damages caused by such unlawful combinations and conspiracies. It is believed that difficulty of proof has been the chief reason why this section has been so nearly a dead letter.

(*d*) * * * It is well known that while it is quite easy to detect and prove combinations of workmen because of their large numbers and the methods which they necessarily adopt, time, care, and skill are required to obtain legal proof of combinations and conspiracies among producers and dealers, who are few in number and also resort to skillful and secret methods.

* * * * * * *

Very respectfully,

JUDSON HARMON, *Attorney General.*

JUDSON C. HARMON, 1897

The Supreme Court rendered on the 22d of March last a very important decision under the act of Congress of July 2, 1890, United States *v.* Trans-Missouri Freight Association. The decisions of the lower court were reversed, and it was held that that act applies to railroad companies as well as others; that it applies to all contracts in restraint of trade and not merely to contracts making unreasonable restraints; that the effect in restraining trade rather than the purpose of the contracts is to be inquired into; and that a contract, legal when made, becomes illegal upon the passage of that act, so that acts done thereafter were done in violation of it. An injunction prohibiting the continuance of the association or of any similar arrangements was upheld. The combination was of 18 railways west of the Missouri River and was for the purpose of maintaining rates of freight.

JUDSON C. HARMON, 1898

United States *v.* Joint Traffic Association et al., 171 U. S. 505. This important case was argued on February 24 and 25, 1898, and decided October 24, 1898. It was a suit brought under the antitrust law to have the agreement creating the Joint Traffic Association declared illegal and its further execution enjoined. The joint-traffic agreement went into effect January 1, 1896. Under it 31 railroad companies, constituting 9 trunk-line systems, namely, the Baltimore & Ohio, the Chesapeake & Ohio, the Erie, the Grand Trunk, the Lackawanna, the Lehigh, the Pennsylvania, the Vanderbilt, and the Wabash, practically controlling the business of railroad transportation between Chicago and the Atlantic coast, entered into an agreement for the purpose of maintaining rates and fares on all competitive traffic.

The court held, Mr. Justice Peckham delivering the opinion, following the Trans-Missouri case, that the joint-traffic agreement was in violation of the antitrust law and therefore void; and it further held that Congress, in dealing with interstate commerce, and in the course of regulating it in the case of railroad corporations, has the power to say that no contract or combination shall be legal which shall restrain trade and commerce by shutting out the operation of the general law of competition.

JOHN W. GRIGGS, 1899

Application is occasionally made to the Department of Justice to have legal proceeding brought in the name of the United States against corporations or combinations of companies that are alleged to be engaged in forming or maintaining monopolies or agreements in restraint of trade or competition. Such actions can be maintained only when the offense comes within the scope of a Federal statute.

* * * * * * *

And this is because the statute [the antitrust law] was passed by Congress under the power conferred upon it by the Constitution (sec. 8, clause 3) "to regulate commerce with foreign nations, and among the several States." The Federal Government has not the constitutional right to supervise, direct, or interfere with the transaction of ordinary business by the people of the several States unless such business relates directly and not incidentally to interstate commerce, and such has been the decision of the Supreme Court of the United States. (United States *v.* E. D. Knight Company, 156 U. S.)

* * * * * * *

The court held [in that case] that, conceding the result of this transaction was the creation of a monopoly in the manufacture of a necessary of life [sugar], it could not be suppressed under the provisions of the Sherman Act, because the contracts and acts of the defendants related exclusively to the acquisition of the Philadelphia refineries and the business of sugar refining in Pennsylvania, which bore no direct relation to commerce between the States or with foreign nations. The object was manifestly private gain in the manufacture of a commodity but not through the control of interstate or foreign commerce. There was nothing in the proofs to indicate an intention to put a restraint upon trade or commerce, and the fact that trade or commerce might be indirectly affected was not enough to entitle complainants to a decree.

In the recent case of Hopkins *v.* United States (171 U. S. 578) the court reiterated its opinion that the Sherman Act had reference only to that trade or commerce which exists or may exist among the several States or with foreign nations, and has no application whatever to other trade or commerce.

And it held that in order to come within the prohibition and remedy of the Sherman Act the combination, business, or occupation sought to be condemned must be one which directly affects interstate commerce, and that combinations in a business which affects interstate commerce only in an indirect and incidental manner are not within the statute.

If the Federal Government has constitutionally the power to regulate by legislation all contracts and combinations in manufacture, agriculture, mining, and all the vast field of productive industry, including the employment of labor and the investment of capital, where not the direct but only the incidental or ultimate result may affect interstate commerce, then, as pointed out by Chief Justice Fuller, it is impossible to say what, if anything, of the ordinary business of life would remain for State regulation or control.

The ordinary affairs of business and trade, of industry and production are governable by the laws of the several States. The State legislatures can say what methods of bargain and sale, what forms of commercial or labor contracts, what kinds of corporations or partnerships shall be permissible within their several jurisdictions. The power of control or regulation by the Federal Government exists only in exceptional instances where actually conferred by the Constitution of the United States. Such an exception is the regulation of interstate commerce. But unless authority for the control of a branch of industry or business by the United States can be found in the Constitution it can not rightfully be exercised, but must be left where it rested before the Union was founded—with the people of the several States.

Of course, I do not refer here to that kind of incidental regulation sometimes exercised by the Federal Government in aid of acts levying taxes. In all such cases the object of the law is the raising of revenue and not the regulation of the business or branch of production which is taxed. It is to secure the honest payment of taxes, not to furnish salutary safeguards for the general public.

In every instance, therefore, where resort is sought to Federal jurisdiction against combinations in restraint of trade, the first question to be decided is, What kind of trade is affected? If not that sort known as interstate commerce, then the Federal courts are without jurisdiction. It is also obvious on principle and from reference to the decisions of the Federal Supreme Court that a direct subject of the combination must be commerce; not simply production, not simply manufacture, but must be commerce; not the mere application of labor or skill, but that composite transaction known as commerce, which involves the buying, selling, and exchange of commodities and their transportation and delivery.

It is also well settled and perfectly clear on principle that it is not all commerce which is subject to Federal regulation and control, but only such as is carried on between the several States or with other nations—what is familiarly and accurately called interstate commerce.

If, therefore, any particular trade, business, or enterprise, system of manufacture, or production of any kind not having the elements of commerce as legally defined or any such business possessing the quality of commerce but not extending as such between the States or with other nations, but confined in commercial operation to the limits of a State, is so organized or operated as to form a total or partial monopoly which injuriously restrains trade and competition, it can not be reached under the Federal jurisdiction, but is subject only to the laws of the particular State in which it operates. There is no question of the right and power of every State to make and enforce laws in restraint of monopoly; that is the normal and proper sphere of State autonomy; while the United States, not having been formed as a Government for the regulation of

the internal affairs and businesses of the State, is limited in its authority to the regulation of that kind of business described as commerce between the States and with foreign nations.

In all cases where the facts presented to the Attorney General, capable of legal proof, have established satisfactorily such an agreement or combination in restraint of interstate commerce as is contemplated by the Sherman Act, legal proceedings have been taken by him in the name of the United States either to dissolve the combination or to punish the offenders by indictment.

JOHN W. GRIGGS, 1900

Summary and syllabus of the Addyston Pipe and Steel Co. *v.* The United States.

(No mention of antitrust cases in reports of 1901 and 1902.)

P. C. KNOX, 1903

Extension of appropriation for enforcing the antitrust law requested. (No further mention of antitrust law.)

WILLIAM H. MOODY, 1904, 1905

(Except for the Northern Securities case (193 U. S. 197) no mention made of antitrust law in report for 1904.)

Numerous alleged violations of the Sherman Act have undergone careful examination in the department. In some cases, after full examination, the department has declined to take action, and in other cases the investigation is still in progress. Several cases are in such a state of completion that action in the near future is likely to be taken.

The consideration of this class of cases has taxed the resources of the department to the utmost. Many of these combinations have existed for a long time. They conduct their business secretly and with the aid of skilled legal advice, and their operations cover many of the States and in some instances all the States.

WILLIAM H. MOODY, 1906

The act entitled "An act to protect trade and commerce against unlawful restraints and monopolies," commonly known as the Sherman antitrust law, approved July 2, 1890, has required and received much interpretation by the courts, but many questions which may be raised under it are yet unsettled. The law dealing with the interstate and foreign commerce prohibits (*a*) agreements "in restraint of trade or commerce," (*b*) agreements "to monopolize any part of trade or commerce," (*c*) monopolization or attempt at monopolization of any part of trade or commerce. Although decisions of the Supreme Court have shed much light upon the meaning of the words used in the law to express the acts prohibited, yet the exact limits of the meaning of "restraints" and "monopolization" have not been ascertained with precision. Moreover, although the conception of commerce among the States and with foreign nations is well defined, its application to the complex conditions of business may often raise questions whether given transactions are foreign or interstate trade, which are not easy of solution. One main purpose of the law that competition shall not by agreements be suppressed runs counter to the tendencies of modern business. The Department of Justice is without organization for the investigation of suspected offenses, though the general appropriation for the enforcement of this and laws of like character made by Congress in 1903 has to some extent supplied this deficiency. Nevertheless it

is true in the main that proceedings instituted by the department have had their origin either in a complaint by some interested person or in the investigation of some other department of the Government. These reasons—the uncertainty of the meaning of the law, its conflict with the tendencies of business, and the insufficiency of the means of detecting offenses—have made its enforcement slow and difficult and obedience to its provisions far from universal. From the date of the enactment of the law to the beginning of President Roosevelt's administration in 1901, 16 proceedings were begun and have been concluded; 5 of them were indictments, in all of which the Government failed, and 11 of them were petitions in equity, in which the Government prevailed in 8 and failed in 3.

CHARLES J. BONAPARTE, 1907

The department has been actively engaged during the past year in the enforcement of the statutes intended to prohibit monopolies and combinations in restraint of trade and discriminations and other abuses by common carriers in interstate and foreign commerce. The policy of the department in this field of its activity has been to investigate very carefully all complaints or information brought to its attention respecting alleged offenses under the statutes in question, and to set on foot proceedings, either civil or criminal, only when fully satisfied not merely that the laws had been violated, but that sufficient proof of such violations could be obtained to justify a reasonable hope of success in the prosecution, and that the public interests demanded action on its part for the proper vindication of the law. As a result of this policy it has had a large measure of success in the prosecutions thus instituted, but the preliminary investigation and the careful consideration given to attendant circumstances of each case have involved much labor on the part of its staff. It has carefully refrained from any action which might reasonably appear to have been undertaken in aid of litigation between private parties, although the developments of such litigation have been diligently scrutinized to determine whether action on its part may be appropriate in the public interest. It has likewise declined to act upon complaints as to matters of comparative insignificance or relating to merely formal breaches of law, believing this legislation to be directed against combinations or oppressive conduct, seriously affecting the interests and commercial liberty of the community. It seems appropriate in this connection to suggest the advisability of legislation looking to the more prompt and effectual enforcement of the above-mentioned statutes. The remedy by injunction is rendered, in a large measure, ineffectual in dealing with alleged violations of law on the part of great corporations or clusters of corporations and of individuals engaged in immense combinations and enterprises by the enormous delay, expense, and trouble involved in furnishing legal proof of facts, in themselves perfectly notorious, and which are merely formally denied to compel the production of such proof. I recommended the enactment of a statute which, in such civil cases, will give the process of the courts engaged in trying them the same scope in securing attendance of witnesses as is permitted by existing law with regard to process in criminal cases for the same purpose, and will also allow courts of equity in such cases to authorize the taking of testimony before several examiners simultaneously, and in as many different districts as the courts may deem appropriate to further the ends of justice. In some of the suits instituted during the present year the prayer for relief has asked, inter alia, the appointment of receivers to adjust the business of the offending corporations to the requirements of the law, provided it shall seem to the court inexpedient to intrust this duty to the officers of the corpora-

tion itself. I respectfully suggest the advisability of an amendment to the law specifying the circumstances under which such relief may be granted and regulating the proceedings of the officers to be so appointed; rather, however, with a view to removing opportunities for misconstruction and possible misrepresentation of the purpose and scope of such relief than because I think there is any probability of unfortunate consequences from the granting of such prayers by the court. I refrain from any recommendations or suggestions as to changes of substance in the statutes above mentioned, because these would involve a consideration of questions of general policy lying beyond the appropriate field of public duty of this department, its legitimate function being to secure the effectual and impartial enforcement of all existing laws.

CHARLES J. BONAPARTE, 1908

It has been the duty of this department to continue the enforcement of the several statutes intended to protect the interstate and foreign commerce of the country from evils arising from combinations and restraint of trade and attempts to create monopolies, as well as discriminations and other illegal practices on the part of common carriers engaged in such commerce. The consistent policy of the department in this branch of its work has been carefully to investigate all complaints submitted to it, whether by public authorities or by responsible private citizens, and to authorize proceedings, whether civil or criminal, only when this investigation shall have shown the complaints to be serious and well founded, and that success in such proceedings might be reasonably expected. This policy was observed during the last year, as it had been previously, and was attended by a fair measure of success in the proceedings authorized. As a consequence of successive decisions already obtained or expected in the near future in causes of this character which have been finally passed upon by the Supreme Court, the statutes above referred to will soon have been so authoritatively interpreted as to remove doubts previously existing or alleged to exist as to the meaning of important provisions, and individuals or corporations seeking in good faith to comply with the law thus relieved from the hardship of uncertainty as to what the law really is. It is of great moment to the community that the law should be clear and readily understood, and this is particularly clear with respect to statutes which affect the commercial relations of the whole people. In accordance with the precedent of my last annual report, I refrain from any recommendation or suggestion as to changes of substance in the said statute, but it seems appropriate to advise the Congress that serious obstacles have been encountered in their effective enforcement which can be, and, in my opinion, may be with advantage, readily removed by further legislation.

GEORGE W. WICKERSHAM, 1909

During the incumbency of my predecessor and since my accession to office the department has continued the policy of enforcing the several statutes intended to protect interstate and foreign commerce of the country from evils arising from combinations in restraint of trade and attempts to create monopolies in the manner outlined in the last annual report of the Attorney General, that policy being, as therein stated, carefully to investigate all complaints submitted to the department, whether by public authorities or by responsible private citizens, and to authorize proceedings, whether civil or criminal, only when this investigation shall have shown complaints to be serious and well founded, and that success in such proceedings might be reasonably expected.

GEORGE W. WICKERSHAM, 1910

Probably more public interest is felt in the prosecutions under the antitrust law than in any other branch of the work of the Department of Justice. * * *

It has been the policy of the department to carefully investigate all complaints made to it concerning contracts, combinations, or conspiracies in restraint of trade or commerce in violation of the Sherman Act. Many of these complaints, upon investigation, prove to be groundless, or develop sources of complaint wholly outside of the scope of the Federal law. The decisions of the Supreme Court, however, sustain, beyond controversy, the proposition that every contract, combination in the form of trust or otherwise, or conspiracy having for its purpose, or directly and necessarily effecting the control of prices, suppression of competition, creation of a monopoly, or other obstruction or restraint of trade or commerce among the States, is made illegal by the Sherman Act; and that every person who shall make such contract, or engage in such combination or conspiracy, is guilty of a misdemeanor and liable to fine and imprisonment. Therefore, where the evidence tends to show that the defendants have combined under contract, agreement, trust, or otherwise, with the obvious intention of restricting output, dividing territory, fixing prices, excluding competition, or otherwise restraining interstate or foreign commerce, or attempting to monopolize commerce among the States or with foreign countries, the department has considered these facts as evidence of such a deliberate attempt to violate the law as to justify the use of any or all of the remedies provided by law which are adequate to prevent the accomplishment of such purposes, and to punish the attempt. In such instances the department endeavors, when the evidence warrants, to secure the indictments of the individuals responsible for the acts complained of. In the administration of this law, however, the department has refrained from instituting criminal proceedings where the evidence merely tends to show that men without intent to violate the law have acted in technical contravention of it, and in such cases has resorted to civil proceedings to restrain a continuance of the acts complained of.

GEORGE W. WICKERSHAM, 1911

There is no doubt that public interest in the enforcement of this law is even greater than it was at the date of my last annual report. The decisions favorable to the Government in the prosecutions against the Standard Oil Co. and the tobacco combination have fully demonstrated the effectiveness of the law to accomplish the purposes for which it was enacted.

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The court in these decisions rejected a literal interpretation of the act which would have brought within its condemnation every agreement which, in any respect whatever, restrained competition; and, holding that a reasonable construction must be given to its language, decided that not every incidental or immaterial restraint of competition was a restraint of trade within its meaning, but that a contract, combination, or conspiracy, in order to fall within the law, must impose a direct and undue restraint upon commerce between the States or with foreign countries.

(Disintegration was ordered by courts.) The problems involved in working out this disintegration were economic rather than legal. * * * But neither the courts nor the Department of Justice is properly equipped to work out such problems save in exceptional cases.

In this particular instance, it happened that the Bureau of Corporations of the Department of Commerce and Labor for some time past had been engaged

in the study of the tobacco industry, and had prepared and published, under the direction of the President, full reports on that industry; and that bureau, at my request, placed at my disposal its best experts, who from their experience in that work had become familiar with the tobacco industry, and the report of its principal expert was largely relied upon by me in accepting as economically satisfactory the distribution of the business under the plan. This was, however, entirely extra-official, as the statutes under which the Bureau of Corporations is organized only contemplate the gathering by that bureau of such information and data as will enable the President to make recommendations to Congress of legislation for the regulation of such commerce, and it is no part of its legal function to act as an advisory body to the Department of Justice. It would be, however, of great value to that department if the functions of the bureau should be so enlarged that it could be called upon officially to make investigations and report its conclusions with respect to plans for the disintegration of monopolistic combinations which either voluntarily, or in pursuance of the decree adjudging them to be in violation of the antitrust law, are proposing plans of disintegration. It might be also availed of as the nucleus for an administrative board under whose supervision consolidations or mergers for lawful purposes might be formed.

GEORGE W. WICKERSHAM, 1912

The experience of the last year in endeavoring to enforce criminal liability under the Sherman law has not been encouraging.

JAMES C. McREYNOLDS, 1913

Alleged violations of this law [Sherman antitrust law] are constantly being reported, and an organization is being perfected through which substantial complaints may be promptly investigated and violations of the act vigorously and speedily dealt with. In this work the services of the several district attorneys will be freely used.

On March 4, 1913, there were pending under this act 52 cases—35 civil, 16 criminal, and 1 contempt proceeding—of which 3 civil, 5 criminal, and 1 contempt proceeding have since been concluded. Since March 4 last 8 cases have been instituted—5 civil and 3 criminal—and 1 of each class has been concluded. At this time 49 cases are pending, of which 43 were instituted during former administrations and 6 during the present.

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The enforcement of criminal liability under the antitrust act during the past year has been attended with greater success than heretofore.

In the Cash Register case, 29 of the 30 defendants were convicted, and fines aggregating $135,000 and jail sentences varying from 9 to 12 months were imposed.

The first trial of the Bath Tub case resulted in a disagreement amongst the jury, but the case was retried in February, 1913, and a verdict of guilty was brought in and fines aggregating over $50,000 were imposed.

In the Cotton Corner case, following the decision of the Supreme Court sustaining the indictments, one of the principal defendants entered a plea of guilty and was fined $4,000.

During the past year the special agents have been engaged in the investigation of a monthly average of more than 36 complaints of alleged violation of the antitrust law. In many instances the investigation has failed to disclose facts which would justify the institution of formal proceedings, but notice of

the activity of the Government has impelled officers of large industrial corporations to curtail dangerous tendencies. Many of these investigations are country-wide in scope and, wherever practicable, the work is distributed among a large number of agents, who are permanently located in diverse parts of the country so that results may be more quickly obtained and the cost of the work kept at a minimum.

T. W. GREGORY, 1914

No branch of the work of this department more vitally affects the public interest than the enforcement of the antitrust act, since the preservation of fair competition in trade and the prevention of monopoly, for which it is designed, are essential to the general welfare.

Complaints of violations of this law are very numerous and, where they have any foundations at all, usually involve very complex states of fact—often an entire industry must be studied in order to reach a conclusion. In the nature of things, therefore, complaints of this character can not be rapidly disposed of.

Every substantial complaint is investigated. In general, the procedure is to refer the complaint to the United States attorney for the appropriate district, whose duty it is to make an investigation, with the assistance of a special agent, and report the facts to the department, together with his conclusions and recommendations. Where the complaint can not be adequately or conveniently investigated by any regular United States attorney a special attorney is designated.

During the period from July 1, 1913, up to the present time, 16 cases have been finally determined—8 civil and 8 criminal.

There are pending at this time 47 cases—32 civil and 15 criminal—of which 15 cases—6 civil and 9 criminal—were instituted during the present administration.

Since July 1, 1913, 18 cases have been instituted—7 civil and 11 criminal—of which 5 have been finally determined—3 civil and 2 criminal.

The work of the agents of this bureau in connection with investigations of complaints of violations of the antitrust law and in securing evidence in pending cases brought thereunder has materially increased in the past year. There have been pending an average of 41 such investigations each month, as compared with 36 during the preceding year. * * * While a number of these investigations have not resulted in evidence which would justify the institution of proceedings in court, it is believed that the activity of the department in such cases has been of benefit in causing the responsible persons involved to forego improper practices.

T. W. GREGORY, 1915

The enforcement of the antitrust act has proceeded along the lines outlined in my last annual report.

Among the more important cases in course of preparation for argument in the Supreme Court are the Harvester case, the Steel case, the Steamship Pool cases, the Lehigh Valley case, the Reading case, the Shoe Machinery case, the Great Lakes Towing case, etc.

When decisions shall have been rendered in these cases the so-called area of debatable ground in the law of restraint of trade will have been greatly circumscribed. * * * During the period from July 1, 1914, up to the present time, 8 cases have been finally determined—6 civil and 2 criminal.

Since July 1, 1914, 13 cases have been instituted—3 civil and 10 criminal—of which 2 civil and 1 criminal have been finally determined. There are pending at this time 45 cases—28 civil and 17 criminal.

T. W. GREGORY, 1916

The present administration has endeavored to correct the fundamental error which characterized the enforcement of the law [the antitrust law] in the past by insisting upon more effective dissolutions of monopolies and combinations in restraint of trade. At the same time *it has been solicitous to avoid prosecutions for which there is no adequate ground.* The Attorney General recently stated the policy of the department in this regard, as follows:

The Sherman Act is enforced by the Department of Justice in the same manner and according to the same rules of policy as other statutes—with the same care and with neither more nor less vigor. Plain or intentional violations are proceeded against vigorously as under other statutes. *When, as with all statutes, doubtful cases arise in which there was no intent to violate the law they are dealt with just as similar cases under other statutes are dealt with; that is, with a view to enforcing strict compliance with the law, but without unnecessary stigmatizing or unnecessarily burdening with litigation persons who have been honestly mistaken as to the law and who stand ready to rectify their mistake.*

During the past year 10 cases have been finally determined—4 civil and 6 criminal. There are pending at this time 36 cases—23 civil and 13 criminal.

T. W. GREGORY, 1917

The abnormal economic conditions resulting from the World War have brought about substantial increases in the prices of practically every commodity, in consequence of which a large number of complaints have been made of alleged violations of the antitrust laws.

In dealing with these complaints there are two broad limitations upon the powers of this department under the antitrust law:

First, increases in prices, brought about not by agreement, conspiracy, or monopoly, but by a common selfish impulse of traders to take advantage of the extraordinary condition of the times, are not punishable under the antitrust laws, no matter how completely lacking in economic justification, no matter how extortionate.

Second, sales of commodities by retailers to consumers in the various cities and communities generally fall outside the field of interstate commerce and therefore are not within reach of the Federal antitrust laws.

Within these limitations, the Department of Justice has brought to bear its full energy. The various United States district attorneys and the various agents of the Bureau of Investigation throughout the country were instructed to make inquiry in their respective communities for the purpose of ascertaining whether the prevailing high prices were due to agreements or conspiracies in restraint of interstate trade. In addition, a special legal and investigating force was organized for this single purpose.

As a result of this investigation several prosecutions have been instituted and the department is still continuing its efforts, although the situation has been to some extent changed by the enactment of the food and fuel control act and the organization of the Food and Fuel Administrations, with power to fix prices in some cases and otherwise control markets—a power which is now being actively exercised.

T. W. GREGORY, 1918

The field of operation of these laws [antitrust] has been somewhat narrowed during the war by the direct intervention of the Government itself in industry, trade, and transportation through the creation of the Food, Fuel, and Railroad

Administrations, the War Industries Board, and other extraordinary administrative agencies.

The underlying theory of the Sherman Act is that the natural laws of trade, more particularly the law of competition, if not obstructed, may be depended upon in ordinary circumstances to prevent private control of markets. Accordingly, that act prohibits contracts and combinations which substantially interfere with the operation of the natural laws of trade.

When natural laws of trade break down, however, as they have done during the war in so many branches of trade, direct governmental action with respect to prices and methods of distribution may become essential in order to prevent private control of markets, for when natural laws of trade can no longer be depended upon to regulate markets, the only choice is between artificial control imposed by private interests and artificial control imposed by public agencies. In these circumstances, therefore, such direct governmental action, so far from running counter to the purpose of the Sherman Act, is directly in line with it.

During the past year 20 cases have been instituted under the antitrust act—10 civil and 10 criminal; and 23 cases have been finally determined—17 civil and 6 criminal. There are pending at this time 32 cases—13 civil and 19 criminal.

* * * * * * *

This case (the International Harvester case) presented the most fundamental issue which has arisen under the Sherman Act since its constitutionality was determined.

The issue is this: The Government contended that combinations of competitive units on a scale large enough to make the resulting restriction of competition direct and substantial are unlawful without more, on the theory that it was not the policy of the Sherman Act to wait until the evils of undue concentration of commercial power have already come to pass but rather to strike at once at undue concentration of commercial power itself. The defendants contended on the other hand that such combinations are not unlawful unless the Government goes further and shows in each particular case that the combination has wrongfully used its power, as for example, by unduly enhancing prices, by unduly limiting the quantity or lowering the quality of product, by unduly lowering wages, etc.; in other words, that monopolistic combines are not unlawful so long as they use their power benevolently.

The effect of the present action is to sustain the contention of the Government, on which the decree of the district court was based.

A. MITCHELL PALMER, 1919

As stated in the report of my predecessor last year, the activities of the department in the enforcement of the antitrust laws during the period of the war were necessarily curtailed in consequence of the direct intervention of the Government itself in industry, trade, and transportation. * * * With the exception of the Railroad Administration, these agencies are no longer maintained.

The department is now actively engaged in the investigation of a number of complaints of alleged violations of the antitrust laws. Among other things, an exhaustive investigation is being conducted with a view to ascertaining whether the prevailing high cost of living is brought about by agreement, combination, or monopolization by individuals or corporations engaged in interstate commerce. While the scope of this inquiry includes clothing and building materials, it is also directed against the meat packers, who, in addition to the meat business, have extended their operations to include butter, eggs, cheese, rice, and practically all kinds of canned goods. A special legal

force has been organized and for several weeks has been engaged in pursuing this inquiry before a grand jury in session at Chicago, Ill.

During the past year 5 cases have been instituted under the antitrust laws—4 civil and 1 criminal; and 9 cases have been finally determined—4 civil and 5 criminal. There are pending at this time 30 cases—16 civil and 14 criminal.

The important event of the year in relation to this subject was the dismissal by the Corn Products Refining Co., in March, 1919, of its appeal to the Supreme Court from the decree of the district court adjudging it a combination in restraint of trade in starch, glucose, and grape sugar, made from corn, and their derivatives, and in mixed sirups containing 85 per cent, or thereabouts, of glucose.

This action put into full force and effect the decree of the district court, which, after adjudging that the union of competitors on so large a scale through the instrumentality of the Corn Products Co. was a combination in restraint of trade, ordered the dissolution of the combination and enjoined it from further pursuing certain trade practices.

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The decree further provided that if these properties shall not have been disposed of within the time specified, they are to be sold at public auction to the highest bidder, and that if at the expiration of three years the measures therein directed and those directed by the previous decrees in the case have not proved adequate in the opinion of the Government to restore competitive conditions in trade and commerce in starch, glucose, and grape sugar, made from corn and their derivatives, and in mixed sirups, and to bring about a situation in harmony with law, the Government shall have the right to such further relief in the present case as may be necessary to that end.

A. MITCHELL PALMER, 1920

Since July 1, 1919, 16 cases have been instituted under the antitrust laws and 12 have been finally determined. Twenty-eight cases remain pending.

[During 1920, judicial cognizance of trade associations was taken, particularly as respects such activities as the interchange of statistics bearing upon the intimate details of industry. The following cases represent abstracts from the Attorney General's report on that subject.] [13]

United States v. American Column & Lumber Co. et al.—Petition filed February 14, 1920, in the District Court, Western District of Tennesse, charging the defendants (603 persons and corporations engaged in the production and sale of hardwood lumber) with combining and conspiring to eliminate competition among themselves and to enhance their selling prices in restraint of trade, contrary to the Sherman Antitrust Act.

The means of accomplishing the conspiracy consisted in joining together as members of a so-called "open competition plan"; conducting meetings and oral discussions concerning past and future prices, stocks, and production; compiling and distributing among themselves monthly and weekly reports and bulletins concerning prices, stocks, and production; and interchanging monthly predictions that prices would be enhanced.

The case came on for hearing early in March, 1920, on the Government's application for a preliminary injunction against the practices referred to. The court, on March 16, 1920, entered a decree granting the injunction.

[13] Author's note.

By a stipulation this decree was made the final decree of the district court. The defendants appealed to the Supreme Court. The case was argued in October, 1920, and reargued in October, 1921. On December 19, 1921 (during the administration of H. M. Daugherty), an opinion was rendered in favor of the Government affirming the decree.

United States v. American Linseed Oil Co. et al.—Petition filed June 30, 1920, in the District Court for the Northern District of Illinois at Chicago, charging the defendants, who constitute nearly all of the most important producers of linseed oil in the United States, with combining and conspiring to suppress competition and enhance prices and retard the lowering of prices in restraint of trade contrary to the Sherman Act.

The means of accomplishing the conspiracy consisted, among other things, in joining together as members of a so-called "open competition plan"; entering into identical contracts to carry on the following activities: Conducting meetings and oral discussions as members of the plan; furnishing the price lists of each defendant for communication to all the other defendants; and agreeing to make special and immediate reports of any sales at lower prices, giving the names of the customers; making daily reports of all carload sales of linseed oil and the prices received upon such sales; and interchanging assurances against lowering prices until further notice. Case was dismissed for want of equity in November, 1921 (during administration of H. M. Daugherty), and an appeal to the Supreme Court has been noted. Decision rendered in favor of the Government on June 4, 1923 (during administration of H. M. Daugherty). The dissolution of this combination was directed. (See p. 341 for Mr. Daugherty's comments.)

During the year 15 cases have been disposed of, including 8 instituted during that time. Thirty-two are now pending, 15 of which were instituted prior to July 1, 1920.

United States v. Southern Pine Association et al.—Petition filed February 23, 1921, in the District Court, Eastern District of Missouri, at St. Louis, charging the association and 130 of its members, who produce more than 35 per cent of the yellow-pine lumber manufactured in the United States, with combining and conspiring to restrain interstate commerce in lumber, in violation of the Sherman Antitrust Act.

Among the means employed were the adoption by defendants of an arbitrary uniform-cost system, the establishment of minimum selling prices upon the basis of an average cost of production, the distribution by the association of information as to the condition of supply and demand showing current production, sales, stocks on hand, etc., which, it is charged, the defendants agreed to use as a guide for the regulation or curtailment of production. (Case dismissed January 3, 1927, in view of decision in Maple Flooring case.)

United States v. Cement Manufacturers Protective Association et al.—On June 30, 1921, a civil suit under the Sherman Antitrust Act against the Cement Manufacturers Protective Association and 19 corporate and 4 individual defendants was instituted in the district court at New York City. The petition charges that the association is organized along the lines of what have come to be generally and euphemistically known as the "Eddy plan," the "new competition," "open-price plan," and "open competitions," the fundamental principle of which is the exchange between the defendants of comprehensive statistical data ostensibly for the purpose of enabling each to know what his competitors are doing, but the chief underlying characteristic of all being that they are not open and they are not competition.

It is charged that in addition to the exchange of statistical data, among other things, the defendants have concertedly adopted 24 so-called trade practices, in and of themselves tending to reduce to a minimum the possibility of competition.

The association is but one of five similar organizations, covering as many different sections of the country, all having a like plan and purpose and all auxiliary to the Portland Cement Association, a national association, of which practically every company manufacturing cement in the United States is a member. It was stipulated that this case be tried on the record made on the trial of the criminal case of United States *v.* Portland Cement Co. et al. [Arguments were heard in February, 1923, and a decision granting all relief prayed for by the Government was rendered. Final decree entered December 13, 1923, and modified on January 14, 1924. Defendants appealed to Supreme Court. Adverse decision to the Government on June 1, 1925. Petition for rehearing by Government denied. (See reports of H. M. Daugherty, 1923 and 1924, and John G. Sargent, 1925.)]

United States v. Atlas Portland Cement Co. et al.—Indictment returned August 8, 1921, against 19 corporate defendants in the preceding case, and in addition 44 individuals managing or conducting the businesses of the corporate defendants. The subject matter of this litigation is the same as that to which the civil proceeding applies.

United States v. The American Terra Cotta and Ceramic Co. et al.—Indictment returned September 28, 1921, in the district court at New York, against 22 corporations and 27 individuals manufacturing in the several States more than 95 per cent of all the terra-cotta building material produced in the United States. The indictment charges that the defendants are associated through the National Terra Cotta Society, and that in accordance with a so-called "open price" or "open-competition" plan each forwards to the society minute statistical data with respect to its business, to be summarized and disseminated to all defendants; that in consequence of that practice each possesses full information pertaining to the business of all, and is thus enabled to effectuate and maintain an agreement dividing the country into three parts, to each of which a group of defendants is assigned and to which the defendants in that group are to confine their sales and shipments. To this and other means the indictment attributes a restraint of interstate trade and commerce in terra cotta, enabling the defendants to exact excessive and arbitrary prices. (See report of H. M. Daugherty for 1922.)

H. M. DAUGHERTY, 1922

During the year 12 cases have been disposed of, including 3 instituted during that time. Thirty-six cases are now pending, 20 of which were instituted prior to July 1, 1921.

United States v. Wickwire Spencer Steel Corporation et al.—Petition filed in United States District Court, Southern District of New York, March 20, 1922. It is alleged that the defendants combined and conspired to restrain and monopolize interstate trade and commerce in flour sifters, dish covers, kitchen utensils, etc. An association was conducted along the lines of the Eddy plan. It is also charged that the defendants had a pooling arrangement as to patents and agreements as to uniform freight allowances. Coincident with the filing of the petition a consent decree was entered prohibiting the acts complained of and directing that the association be dissolved.

United States v. Atlantic Terra Cotta Co. et al.—Indictment returned September 28, 1921, in the district court at New York City against 7 corporations

engaged in the manufacture of terra cotta and 12 individuals conducting or managing businesses in that commodity. Among other things, the indictment alleges that the defendants combined and conspired to divide the country in three parts and assign to each group of terra-cotta manufacturers, who were to confine all shipments and sales exclusively within that territory, and that as a means of effectuating this and other purposes of the conspiracy the defendants used a so-called "open-price" or "open-competition" plan, in pursuance of which each opened and exposed all the important details of his business to the others, in order that each might possess full information as to the business of all. The indictment further charges that the effect has been to eliminate competition and thus artificially induce and maintain arbitrary and excessive prices.

In December, 1921, pleas of guilty were entered as to 7 corporate and 10 individual defendants, and on December 15, 1921, a fine of $3,000 was imposed upon each. Nolle-prosequi entered as to two remaining defendants on November 7, 1923. (See report of Harlan F. Stone, 1924.)

United States v. Lehigh Portland Cement Co. et al.—Indictment returned March 9, 1922, in the District Court, Northern District of Illinois, charging 26 corporations and 48 individuals with combining and conspiring to restrain interstate commerce in Portland cement. Among other things, the defendants organized and maintained the Mid-West Cement Credit and Statistical Bureau, through which they exchange minute and comprehensive details with respect to their businesses.

United States v. American Terra Cotta and Ceramic Co. et al.—Indictment filed March 27, 1922, in the United States District Court, Northern District of Illinois, presenting that seven corporations and seven individuals had conspired and combined for the purpose of restraining and monopolizing interstate trade and commerce in terra cotta. It is alleged that defendants, with others, formed the National Terra Cotta Society; that such society divided the United States into sections, for trade purposes, with certain "open" territory; that the different members of the society were designated to deal in one division and prohibited from doing business with persons in other sections. The corporations all entered into agreements along the line of the "Eddy plan," submitting reports regarding prices, trade conditions, etc., which were redistributed in summarized form, thereby furnishing each member with full information as to the other members' business. (Nolle prosequi entered August 4, 1923.)

H. M. DAUGHERTY, 1923

While it is the purpose of the Department of Justice not to unnecessarily interfere with private business, the Federal antitrust laws must be enforced against whoever may attempt to interpose artificial restraints in any channel of interstate trade. The natural resources and prosperity of the country must be distributed among the people so that they may have full and free enjoyment thereof. The channels of trade must be kept free from manipulation and arbitrary control, and individuals and the general public must be protected from the illegal practices to which the business of the country is from time to time subjected.

During the year 20 cases have been disposed of, including 6 instituted during that time. Forty-four cases are now pending, 29 of which were instituted prior to July 1, 1922.

United States v. American Linseed Oil Co. et al.—June 4, 1923. The dissolution of this combination was directed. The Sherman law forbids any combina-

tion of competitors the necessary tendency of which is to suppress competition in trade between the States. This tendency may be deduced from the entire contract and that which has been done under it. Here a number of competitors secretly became parties to an agreement by which each was required to reveal to all the intimate details of its affairs; to subject itself to a bureau, pay to it large fees, and deposit funds to secure obedience; to furnish a schedule of minimum prices and terms and adhere thereto until prepared to inform its associates of departure therefrom; to attend a monthly meeting and report upon matters of interest to be there discussed; to comply with all reasonable requirements of the bureau; and to reveal no secrets. The organization vigorously functioned according to the letter and spirit of the agreement. Its members were no longer bona fide competitors.

United States v. Hiram Norcross et al.—Petition filed in October, 1921, in the western district of Missouri against Hiram Norcross, as sole owner and manager of the Norcross Audit and Statistical Bureau, and six other defendants, subscribers to the bureau, charging that they are engaged in a combination and conspiracy in restraint of interstate trade and commerce in Portland cement. The end is alleged to have been accomplished by "gentlemen's agreements," restriction of production, interchange of statistics, withholding cement from the markets, uniform cost-accounting systems, etc. Action to be taken in this case will be largely controlled by the decision in the case of United States *v.* Cement Manufacturers' Protective Association et al.

United States v. Mid-West Cement Credit and Statistical Bureau et al.—Petition filed on October 25, 1921, in the District Court, Northern District of Illinois, charging defendants with combining and conspiring to restrain interstate trade and commerce in Portland cement by means of "gentlemen's agreements." interchange of trade statistics, withholding cement from the market, uniform systems of accounting, etc. The apparent chief characteristic of the association is to enable each member to know what its competitors are doing, but it is alleged that in fact the association is not open and there is no competition. Action to be taken in this case will be largely controlled by the decision in the case of United States *v.* Cement Manufacturers' Protective Association et al.

United States v. Gypsum Industries Association et al.—Petition filed January 3, 1923, in United States District Court for the Southern District of New York, alleging a combination and conspiracy in restraint of interstate commerce among defendants, dealers in gypsum products. The restraint is alleged to have been accomplished through the distribution of statistical data relating to prices, sales, orders, etc. Contemporaneous with the filing of the petition, an uncontested decree was entered prohibiting the practices complained of.

United States v. Maple Flooring Manufacturers' Association et al.—Petition filed March 5, 1923, in the District Court of the United States for the Western District of Michigan, alleging that the 22 manufacturers who are members of the defendant association and 24 individuals are engaged in a combination and conspiracy in restraint of interstate trade and commerce in maple, beech, and birch flooring.

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United States v. Western Pine Manufacturers' Association et al.—Petition filed April 30, 1923, in the United States District Court for the District of Minnesota, alleging that the members of the defendant association and individuals representing them are engaged in a combination and conspiracy to restrain the interstate trade and commerce in lumber manufactured from Idaho white pine, western white pine, and other woods. The petition alleges that this has been accomplished through the preparation and use of basic price lists, the establishment and maintenance in various ways of uniform and noncompeti-

tive prices and of uniform manufacturing and trade practices, and through the maintenance of an "open-price exchange" or "open-competition plan," with voluminous and detailed reports as to the prices, orders, production, and stocks on hand of the lumber sold by the defendants. Case to be tried in January, 1924. In view of decision in Maple Flooring case, case dismissed. (See reports of J. G. Sargent for 1925 and 1926.)

HARLAN F. STONE, 1924

The work of this division during the year has been directed mainly toward the solution of two major problems arising in the enforcement of the antitrust law. The first has to do with the selection and prosecution of cases involving the organization and activities of trade associations. Practically every industry has its trade association. Many of these are operating along lines which are entirely lawful and of considerable benefit to the members and to the public; some are groping in the twilight zone of illegality; a few are wholly illegal. Cases involving conscious illegality have been energetically prosecuted. The main purpose, however, has been to center attention upon a number of well-chosen cases which, when finally determined, will define with a greater certainty the activities to which such associations may not resort, and, on the other hand, aid honest business men to determine what measure of cooperation they may lawfully adopt.

The second problem involves the application of the antitrust law to restraints of trade and monopolies based upon the acquisition or pooling of competitive patents. The antitrust law and the patent law have different and, to some extent, conflicting purposes. Here, also, the effort has been to bring carefully selected cases which will aid in clarifying the law. The Department of Justice considers that its duty requires it to invoke the antitrust act in every situation, however novel, which appears to come fully within the spirit or intendment of the act.

During the past year 23 cases have been finally determined, 8 civil and 15 criminal, and 15 cases have been instituted, 13 civil and 2 criminal. There are now pending 44 cases, 27 civil and 17 criminal, of which 29 cases were instituted prior to July 1, 1923, 14 civil and 15 criminal.

United States v. Maple Flooring Manufacturers' Association et al.—Petition filed March 5, 1923, in the District Court of the United States for the Western District of Michigan, alleging that the 22 manufacturers who are members of the defendant association and 24 individuals are engaged in a combination and conspiracy in restraint of interstate trade and commerce in maple, beech, and birch flooring. The defendant association has as members practically all the manufacturers of such flooring in Minnesota, Wisconsin, Illinois, Michigan, and New York, representing about 70 per cent of the total manufacturing capacity in the United States. The petition charges that the defendants agree upon and establish uniform minimum prices, uniform terms of sale, uniform commissions, that they use a common trade-mark and uniform grading rules; that they calculate the freight in making delivered prices from a freight-basing point and agree upon and maintain uniform delivered prices; and that they also operate under a so-called "open-price" reporting plan or "open-competition" plan. Alternative motion to dismiss the petition and to strike out various portions thereof filed by the defendants argued June 25, 1923, and denied in all respects. Trial of case commenced on November 26, 1923, and a decision favorable to the Government was rendered on December 19, 1923. Final decree entered January 4, 1924. Appeal to the Supreme Court. Court reversed decision of the district court on June 1, 1925. Petition for rehearing filed and denied. (See reports of John G. Sargent, 1925 and 1926.)

United States v. Western Pine Manufacturers' Association et al.—Petition filed April 30, 1923, in the United States District Court for the District of Minnesota, alleging that the members of the defendant association and individuals representing them are engaged in a combination and conspiracy to restrain the interstate trade and commerce in lumber manufactured from Idaho white pine, western white pine, and other woods. The petition alleges that this has been accomplished through the preparation and use of basic price lists, the establishment and maintenance in various ways of uniform and noncompetitive prices and of uniform manufacturing and trade practices, and through the maintenance of an "open-price exchange" or "open-competition plan," with voluminous and detailed reports as to prices, orders, production, and stocks on hand of the lumber sold by the defendants. Dismissed as to two individual defendants and one corporate defendant on October 29, 1923. Case set for trial as to remaining defendants on January 12, 1925.

JOHN G. SARGENT, 1925

In the last annual report it was said that the work of this division was being directed to the pressing of cases which would bring about a clarification of the law as to the rights of trade associations and patent owners under the antitrust act.

Since then the Supreme Court, in deciding the Maple Flooring and Cement cases (Nos. 342 and 551, October term, 1924), has held that the mere collection and dissemination of business statistics by a trade association, unaccompanied by concert of action or agreement in the use of the statistics, does not constitute a violation of the act. The department filed petitions for rehearing which expressly accepted the principle of the decisions, but pointed to evidence in the records which seems to prove that the associations in question had exceeded their rights in the use of the statistics. Rehearing of the cases was, however, denied.

The position of the department, as outlined in these petitions, brought it more nearly in line with the views of other agencies of the Government having to do with the subject of trade associations, thus bringing about a uniformity of policy and practice which will be of assistance to business men who desire by cooperative methods to eliminate waste and unfair practices in industry and at the same time to keep strictly within the law.

United States v. *Lindsley Brothers Co. et al.*—Indictment returned on December 20, 1924, in the United States District Court for the Eastern District of Washington, charging that defendants have unlawfully engaged in a combination in restraint of interstate and foreign trade and commerce in western red cedar poles by means, among others, of agreements between themselves to eliminate competition as to terms and conditions of sale, as to treating charges, as to f. o. b. basing prices, as to charges for freight, and as to delivered prices; and of maintaining the Western Lumber and Pole Co., the Western Red Cedar Association, and Western Red Cedarmen's Information Bureau for the purpose of distributing statistics and uniform freight-rate sheets and price lists. Trial of case expected in fall, 1925.

JOHN G. SARGENT, 1926

The effort of this division has been directed first to a disposition of the cases pending in the courts. * * *

Particular attention was devoted to the prosecution of suits against concerns whose business affected the necessaries of life and living conditions generally.

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The department has encouraged the submission to it of policies and plans adopted by the various trade associations. To the associations which have submitted such statements the department has made clear that it can not and will not give a statement of approval or opinion as to legality. But in the case of associations which in the opinion of the department have endeavored to comply with the law but whose methods appear to be of doubtful legality, the department has brought this fact to their attention.

The entry of a number of consent decrees enjoining the violations of the antitrust laws has called forth considerable public discussion. A consent decree is analogous to a plea of guilty in a criminal proceeding and represents simply a submission by a defendant in equity to the demands of the petitioner. Such decrees have been of frequent occurrence in antitrust history from the beginning and have been recognized by Congress in section 5 of the Clayton Act. It is believed that the readiness of defendants in these cases to seek compliance with the law when violation on their part is brought to their attention is productive of great public benefits through the avoidance of long and costly litigation. The result of such litigation is generally to obtain no more for the public than is obtained by the entry of a consent decree in the beginning.

If an advertised merger or proposed combination be suspected of illegality, investigation is started at once; and if there be evidence of illegality, proceedings are instituted before the plan can be consummated. By this method stock in the concern is not unloaded upon the public, the interest of the customer is protected, the honest producer is benefited, and the evil of the promoter is averted.

Thirty-six cases have been finally determined, 15 criminal and 21 civil, and 15 cases have been instituted, 7 criminal and 8 civil. There are now pending 26 cases, 10 criminal and 16 civil, including 19 cases instituted prior to the above date, 4 criminal and 15 civil.

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Accounting and budgeting.
Cooperative advertising.
Credits and collections.
Employee relations.
Foreign trade and exchange.
Insurance.
Legal status.
Marketing.
Office management.
Organization and management.
Prices.
Research.
Simplification and standardization.
Statistics.
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Tipper, Harry, and others. The Principles of Advertising. (2d. ed., rev. and enl.) N. Y.: Ronald Press Co., 1925. 473 p. A discussion of the economic, psychological, and physical factors, together with the essential principles of artistic arrangement and English composition as applied to the construction of advertisements. Finally it sums up all these parts in the actual operation of an advertising campaign.

Tosdal, H. R. Problems in Sales Management. (rev. ed.) Chicago: A. W. Shaw Co., 1925. 850 p. A series of new and actual problems covering the following phases of sales management: Sales organization; sales research and sales planning; sales policies relating to product, distribution policies, prices, and terms of sales; selling methods, management of sales force; delivery policies and methods; credits and collections and financing of sales; and control of sales organizations.

Tosdal, H. R. Principles of Personal Selling. Chicago: A. W. Shaw Co., 1926. 753 p. A discussion of the basic principles of personal selling and their effective application to all types of business engaged in marketing.

United States Congress. Joint Commission of Agricultural Inquiry. Marketing and Distribution. (Part IV, H. Rept. No. 408.) Washington: Government Printing Office, 1921. A detailed marketing and distribution analysis of certain agricultural products in the United States, based on a congressional survey.

Walter, Frederick W., editor. The Retail Charge Account. N. Y.: The Ronald Press Co., 1922. 264 p. A description of the methods developed by the credit departments of a number of stores in handling the specific problems that come before them. It is based on lectures delivered by the credit managers of New York's leading stores before the Associated Retail Credit Men of New York City.

Weld. L. D. H. Marketing of Farm Products. N. Y.: The Macmillan Co., 1915. 483 p. The fundamental principles of market distribution as applied to the marketing of agricultural products.

White, Percival. Market Analysis, Its Principles and Methods. (2d ed.) N. Y.: McGraw-Hill Book Co. (Inc.), 1925. 438 p. A discussion of the organization of a survey, an analysis of markets, and a study of the consumer.

White, Percival. Scientific Marketing Management. N. Y.: Harper & Bros., 1927. 318 p. An analysis and measurement of demand in the distribution end of business.

White, Percival, and Hayward, Walter S. Marketing Practice. N. Y.: Doubleday, Page & Co., 1924. 577 p. An expository and not a critical treatment of various marketing practices—a practical guide to marketing.

OFFICE MANAGEMENT

Galloway, Lee. Office Management. N. Y.: Ronald Press Co., 1918. (6th printing, 1923), 701 p. A discussion of the principles and practice of office management covering organization, arrangement, and operation with special consideration of the employment, training, and payment of office workers.

Leffingwell, William H. Office Management: Principles and Practice. Chicago: A. W. Shaw Co., 1925. 805 p. A statement of the principles and practice of office management, the opportunities for the elimination of waste in the field of clerical operations, and the economic significance of efficiency.

Schulze, J. William. Office Administration. N. Y.: McGraw-Hill Book Co. (Inc.), 1919. 295 p. A discussion of those principles and methods which underlie efficient and economical office management, including a description of methods of handling office details that have been developed in the best managed offices.

ORGANIZATION AND MANAGEMENT

Alford, L. P., editor. Management's Handbook. N. Y.: Ronald Press Co., 1924. 1,607 p. A handbook for manufacturers, bringing together in condensed form a mass of working data covering the whole field of applied management in industry—production, purchasing, marketing, finances, and interrelated operations.

Bloomfield, Daniel, editor. The Modern Executive. N. Y.: H. W. Wilson Co., 1924. 266 p. A collection of articles devoted to the executive, his place in management, and how executive ability may be recognized and developed.

Dutton, Henry P. Business Organization and Management. Chicago: A. W. Shaw Co., 1925. 545 p. A handbook in which the broad fundamentals of organization and management are seen as a whole and grasped in their relations to each other.

Fitzpatrick, F. Stuart. A Study of Business Men's Associations. Olean, N. Y.: Olean Times Publishing Co., 1925. 177 p. A study of the organization of associations of business men classified geographically and by commodities, together with a discussion of their relation to local and Federal Government.

Gerstenberg, C. W. Principles of Business. (3d ed.) Prentice-Hall (Inc.), 1922. 821 p. Business procedure, step by step, from the organization of the corporation to the sale of the product to the consumer.

Hunt, Edward Eyre. Scientific Management Since Taylor. N. Y.: McGraw-Hill Book Co. (Inc.), 1924. 263 p. A collection of papers and addresses on the more recent aspects of scientific management. Special emphasis has been placed on the human side of the subject.

Hunt, Edward Eyre. Conferences, Committees, Conventions, and How to Run Them. N. Y.: Harper & Bros., 1925. 218 p. A manual of technique and procedure for the planning, organizing, and directing of collective activity in the form of conferences and conventions. Although it deals principally with large conferences, such as trade conventions, diplomatic conferences, and meetings of technical and religious bodies, the book contains pertinent suggestions for the conduct of meetings of small groups.

Jones, Edward D. The Administration of Industrial Enterprises. N. Y.: Longmans, Green & Co., 1925. 618 p. A discussion of the underlying general principles of administration which govern all joint enterprises, whether of a business nature or otherwise.

Kimball, Dexter S. Principles of Industrial Organization. (3d ed.) N. Y.: McGraw-Hill Book Co. (Inc.), 1925. 436 p. Written primarily for the practical engineer or manager who desires to know something of the fundamental principles of organization without regard to some specific system of management.

McKinsey, James O. Business Administration. Cincinnati: Southwestern Publishing Co., 1924. 318 p. A survey of business administration classified into the following five major groups—marketing, production, personnel, finance, and standards and records.

Metcalf, Henry C., editor. Scientific Foundations of Business Administration. Baltimore: The Williams & Wilkins Co., 1926. 341 p. An analysis of the philosophical, biological, economic, and psychological foundations of business administration, and their basic administrative principles as they apply to practical business affairs.

Naylor, E. H. Trade Associations: Their Organization and Management. N. Y.: Ronald Press Co., 1921. 389 p. Trade associations treated principally from a historical viewpoint.

Robinson, Webster. Fundamentals of Business Organization. N. Y.: McGraw-Hill Book Co. (Inc.), 1925. 230 p. An analysis of eight fundamentals of business organization, together with an explanation as to their general applicability.

Schell, Erwin H. The Technique of Executive Control. N. Y.: McGraw-Hill Book Co. (Inc.), 1924. 133 p. An analysis of the problems which confront the executive in his relations with his subordinates, associates, and superiors.

Shaw, A. W. An Approach to Business Problems. Cambridge: Harvard University Press, 1920. 333 p. A classification of business activities, a uniform method of approach to business problems in whatever form they may arise, and the application of a uniform method to typical problems are presented.

Taylor, Frederick W. Scientific Management. N. Y.: Harper & Bros., 1911. 140 p. A work on the principles of scientific management by the originator of scientific management.

Thompson, C. Bertrand. The Theory and Practice of Scientific Management. Boston: Houghton Mifflin Co., 1917. 319 p. Economic and practical aspects of scientific management.

White, Percival. Business Management. N. Y.: Henry Holt & Co., 1926. 731 p. A discussion of the entire range of business endeavor—the business structure, the executive, and the internal and external factors in management are included. Written from the point of view of the executive.

PRICES

Clark, Fred E. Readings in Marketing. N. Y.: The Macmillan Co., 1924. 705 p. An interpretation of market conditions, developed primarily on a functional and institutional basis, but following to some extent a product basis.

Fisher, Irving. Stabilizing the Dollar. N. Y.: The Macmillan Co., 1920. 305 p. A plan to stabilize the general price level without fixing individual prices.

Foster, William T., and Catchings, Waddill. Profits. Boston: Houghton Mifflin Co., 1925. 465 p. One of the five parts of this book, published for the Pollak Foundation for Economic Research, deals with the functions of prices and profits.

Friday, David. Profits, Wages, and Prices. N. Y.: Harcourt, Brace & Howe, 1920. 256 p. A discussion of the increase in wages and rise in prices for the five years previous to 1920.

Kemmerer, Edwin W. High Prices and Deflation. Princeton: Princeton University Press, 1920. 86 p. An explanation of the process of inflation, degree of inflation, and the ecomonic and social results following it.

Lloyd, E. M. H. Stabilization: An Economic Policy for Producers and Consummers. N. Y.: Alfred A. Knopf, 1923. 140 p. An analysis of the chief causes and results of the existing instability of prices. Also a discussion of price control.

Murchison, C. T. Resale Price Maintenance. N. Y.: Columbia University Press, 1919. 202 p. An unbiased study of price maintenance.

National Industrial Conference Board. Cost of Living in the United States, 1914–1926. N. Y.: National Industrial Conference Board, 1926. 233 p. A survey of the costs of living in the United States from July, 1914, to January, 1926.

Roberts, G. E. Fallacy of Price Fixing. N. Y.: National City Bank of New York, 1924. 29 p. An address delivered at the College of Agriculture, Ohio State University, Columbus, Ohio, February 6, 1924.

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United States Department of Labor, Bureau of Labor Statistics. Wholesale Prices, 1890 to year of publication. (Wholesale Prices Series. Annual publication.) Washington: Government Printing Office.

Willis, Henry P., and Byers, John R. B. Portland Cement Prices. N. Y.: Ronald Press Co., 1924. 123 p. A detailed analysis of the position of prices and price levels current during 1924 in the Portland cement industry.

RESEARCH

BUSINESS CYCLES

Adams, A. B. Economics of Business Cycles. N. Y.: McGraw-Hill Book Co. (Inc.), 1925. 26 p. A study of the growth and development of the modern business system, the fluctuations in prices, the development of credit and of business cycles.

Berridge, William Arthur. Cycles of Unemployment, 1903–1922. Boston: Houghton Mifflin Co., 1923. 88 p. A statistical study of fluctuations in employment from 1903 to 1922, particularly in New York, Massachusetts, and Wisconsin, in relation to other aspects of business cycles.

Edie, L. D., editor. Stabilization of Business. N. Y.: The Macmillan Co., 1923. 400 p. Business policies and their relation to business cycles. The contributions to the discussion have been made by a number of experts.

Hardy, Charles O., and Cox, Garfield V. Forecasting Business Conditions. N. Y.: The Macmillan Co., 1927. 434 p. A description of the methods by which an individual can best predict the course of business prosperity for a comparatively short period.

Hastings, H. B. Costs and Profits: Their Relation to Business Cycles. Boston: Houghton Mifflin Co., 1923. 168 p. A new interpretation of the cause of business depressions.

Jordan, D. F. Business Forecasting. N. Y.: Prentice-Hall (Inc.), 1923. 270 p. A detailed explanation of the method of forecasting and its application in business procedure.

Mitchell, Wesley C. Business Cycles: The Problem and Its Setting. N. Y.: National Bureau of Economic Research (Inc.), 1927. A description of developments in business cycles, together with a critical summary of recent results and current problems. The first of two volumes designed to cover the whole problem of business fluctuations.

National Bureau of Economic Research. Business Annals. N. Y.: National Bureau of Economic Research (Inc.), 1926. 380 p. A history of the business cycles of the world.

National Bureau of Economic Research. Migration and Business Cycles. N. Y.: National Bureau of Economic Research (Inc.), 1926. 250 p. A study dealing with the effects of immigration and emigration upon the economic life of the United States.

Persons, Warren M., and others. The Problem of Business Forecasting. Boston: Houghton Mifflin Co., 1924. 317 p. Selected addresses delivered at the 1923 meeting of the American Statistical Association, and edited by Warren M. Persons, William T. Foster, and Albert J. Hettinger.

President's Conference on Unemployment (called by President Harding). Business Cycles and Unemployment. N. Y.: McGraw-Hill Book Co. (Inc.), 1923. 405 p. The report and recommendations of a committee of the President's Conference on Unemployment containing suggested methods for the control of business, together with a fact report made under the auspices of the National Bureau of Economic Research.

Schluter, William C. The Pre-War Business Cycle, 1907 to 1914. N. Y.: Columbia University Press, 1923. 191 p. An analysis of the causes of the business depressions of 1910–11 and 1913 in the United States, with a chapter devoted to an explanation of the varying lengths of business cycles.

Snyder, Carl. Business Cycles and Business Measurements. N. Y.: The Macmillan Co., 1927. 326 p. Contains a standard for the measurement of business or trade of the country from month to month from 1919 to date, by means of an Index of the Total Volume of Trade, derived from 56 separately computed indexes.

Vance, Ray. Business and Investment Forecasting. (2d ed., rev.) N. Y.: Harper & Bros., 1925. 187 p. An enlightening consideration of general business barometers, with the emphasis placed on their use rather than on their construction or mathematical background. Included in this discussion are the factors which are employed in making up the Brookmire barometers of commodity and industrial stock prices.

COMMERCIAL

Berridge, Wm. A., and others. Purchasing Power of the Consumer. Chicago: A. W. Shaw Co., 1925. 318 p. A statistical index by William A. Berridge, Emma A. Winslow, and Richard S. Flinn.

Crowell Publishing Co. National Markets and National Advertising. N. Y.: Crowell Publishing Co., 1927. 275 p. A statistical study showing national income by States, trading areas, counties, and cities, and amounts spent in national advertising indexed by advertisers and products.

Duncan, Carson S. Commercial Research. N. Y.: The Macmillan Co., 1919. 385 p. A discussion of the need, character, and working principles for scientific research in the field of commercial organization.

Eigelberner, J. Investigation of Business Problems: Technique and Procedure. Chicago: A. W. Shaw Co., 1926. 335 p. A brief outline of the investigational process and a description of the methods of obtaining facts by various means, including questionnaires, interviews, and other ways.

Frederick, J. George. Business Research and Statistics. N. Y.: D. Appleton & Co., 1920. 342 p. Methods of securing fundamental facts in business research.

Knauth, Oswald W. Distribution of Income by States in 1919. (2d. ed.) N. Y.: National Bureau of Economic Research, 1923. 30 p. An analysis of income by States—the income of the average farmer and other individual incomes.

Leven, Maurice. Income in the Various States, Its Sources and Distribution, 1919, 1920, and 1921. N. Y.: National Bureau of Economic Research (Inc.), 1925. 306 p. A statistical study of income based upon estimates of the national totals by Willford I. King.

National Bureau of Economic Research (Inc.), Staff of the. Income in the United States, Its Amount and Distribution, 1909–1919. Vols. I and II. N. Y.: Harcourt, Brace & Co., 1921. The first volume is a summary of the findings, intended for readers who are primarily interested in the results. The second volume gives in full the methods and estimates on which the results are based. In addition, it goes into details concerning particular industries.

Thompson Co., J. Walter. Population and Its Distribution. (4th ed.) N. Y.: J. Walter Thompson Co., 1926. 371 p. Contains most recent estimates of population figures for the United States, income-tax returns, and a count of the retail and wholesale dealers by States and chief cities.

United States Department of Commerce, Bureau of Foreign and Domestic Commerce. Commerce Yearbook. (Annual publication.) Washington: Government Printing Office. An economic review of the United States and the world.

United States Department of Commerce, Bureau of Foreign and Domestic Commerce. Atlas of Wholesale Grocery Territories. (Domestic Commerce Series No. 7.) Washington: Government Printing Office, 1927. 157 p. A series of maps of wholesale grocery trade areas, with a statistical measure of the potentialities of these markets.

United States Department of Commerce, Bureau of Foreign and Domestic Commerce. Market Research Agencies. Annual publication. Washington: Government Printing Office. A list of public and private agencies carrying on market research, with their publications.

Vanderblue, Homer B. Problems in Business Economics. Chicago: A. W. Shaw Co., 1924. 631 p. Practical problems for the business man—cycles, costs, profits, statistical tables, merchandising, investment, advertising, etc.

White, Percival. Advertising Research. N. Y.: D. Appleton & Co., 1927. 597 p. A presentation of the scientific methods of research, showing how these methods may be applied to all phases of advertising work.

Woman's World Magazine Co. (Inc.)., Woman's World County Handbook on National Distribution. Chicago: Woman's World Magazine Co. (Inc.), 1923. 262 p. Contains data on population of towns, cities, counties, and States; retail outlets, maps; etc.

INDUSTRIAL

Annals of the American Academy of Political and Social Science, Philadelphia. Vol. CXIX, May, 1925. Science in Modern Industry.

Chamber of Commerce of the United States, Washington. Cooperative Industrial Research. 1925. 38 p. A record of industrial research as a trade association activity.

Committee on Elimination of Waste in Industry of the Federated American Engineering Societies. Waste in Industry. N. Y.: McGraw-Hill Book Co.

(Inc.), 1921. 402 p. A committee report of a survey of waste resulting from inefficient management in six industries.

Farnham, Dwight T., and others. Profitable Science in Industry. N. Y.: The Macmillan Co., 1925. 291 p. A collection of papers concerning the value of research in industry. Attention is given to scientific research as an association activity.

Fleming, A. P. M., and Pearce, J. G. Research in Industry the Basis of Economic Progress. N. Y.: Sir I. Pitman & Sons (Ltd.), 1922. 244 p. A discussion of the nature of industrial research and its application to the progressive development of industry, with some attention given to the manner in which existing research resources may be placed at the disposal of industry.

Keir, Malcolm. The Epic of Industry. New Haven: Yale University Press, 1926. 329 p. A history of what research has accomplished for industry in America.

Mees, C. E. Kenneth. The Organization of Industrial Scientific Research. N. Y.: McGraw-Hill Book Co. (Inc.), 1920. 175 p. A study of the best methods of organizing research work for industrial purposes and of the conditions under which such work should be conducted.

National Research Council. Industrial Research Laboratories of the United States. Washington: National Research Council, 1927. A list of approximately 1,000 industrial research laboratories in the United States and the chief lines of their research.

Report of Board of Visitors to Bureau of Standards of the Department of Commerce for the Secretary of Commerce. (Miscellaneous Publication 63.) Washington: Government Printing Office, 1925. 14 p. Includes a summary of the industrial research work carried on by the Bureau of Standards.

United States Department of Commerce, Bureau of Standards. Standards Yearbook, 1927. Washington: Government Printing Office, 1927. 392 p. Contains outlines of the activities and accomplishments of the Bureau of Standards and other bodies engaged in work on standardization.

Weber, Gustavus A. The Bureau of Standards. Baltimore: The Johns Hopkins Press, 1925. 299 p. The history, activities, and organization of the Bureau of Standards, the results of whose research are of application in science, industry, and commerce.

SIMPLIFICATION AND STANDARDIZATION [14]

Alford, L. P., editor. Management's Handbook. N. Y.: The Ronald Press Co., 1924. 1,607 p. Section 17 (p. 987–1034) is devoted to a discussion of the fundamentals in simplification and standardization.

American Engineering Standards Committee. American Engineering Standards Committee Yearbook, 1926. N. Y.: The Committee, 1926. 76 p. A report of the outstanding developments in the work of the American Engineering Standards Committee during 1925.

Cole, Dale S. Simplified Practice and the Small Shop. Industrial Management, April, 1927.

Encyclopedia Britannica. Standardization. (Vol. III, 13th edition, pp. 639–640.) N. Y.: The Encyclopaedia Britannica (Inc.), 1926.

Hudson, Ray M. Cutting Down the Waste Pile. Management and Administration, May, 1925.

[14] Because of the scarcity of books on this subject, some magazine articles have been included.

Hudson, Ray M. The Six Ways to Eliminate Waste. Management and Administration, August, 1925.

Hudson, Ray M., and Priest, Ernest L. Saving Through Simplified Practice. Journal of Home Economics, January, 1926.

Shaw, A. W. Simplification: A Philosophy of Business Management. Harvard Business Review, July, 1923.

United States Department of Commerce, Bureau of Standards. Standards Yearbook, 1927. Washington: Government Printing Office, 1927. 392 p. Contains a discussion of the trend of standardization and a statement of the activities of American societies and associations of which standardization is a major or an important activity.

United States Department of Commerce, Division of Simplified Practice. A Primer of Simplified Practice. Washington: Government Printing Office, 1926. 58 p. A set of typical questions and answers on the movement called simplified practice.

United States Department of Commerce, Division of Simplified Practice. Stabilizing Business Through Waste Elimination. (Mimeographed. 12 p.) Available from Division of Simplified Practice only.

STATISTICS

Copeland, Melvin T., editor. Business Statistics. Cambridge: Harvard University Press, 1917. 696 p. A compilation of articles and selections covering the actual use of statistics in mercantile and manufacturing businesses.

Crum, William L., and Patton, Alson C. An Introduction to the Methods of Economic Statistics. Chicago: A. W. Shaw Co., 1925. 493 p. A practical application of the rules of statistical methods, including the processes of collecting and editing the data, charting, summarizing, etc. The limitations to the practical application of statistics are discussed.

Day, Edmund E. Statistical Analysis. N. Y.: The Macmillan Co., 1925. 459 p. A careful attempt to give the economist a systematic exposition of the statistical method as a tool of research.

Fisher, Irving. The Making of Index Numbers. Boston: Houghton Mifflin Co., 1922. 526 p. A textbook upon methods of index number construction.

Gavett, G. I. First Course in Statistical Method. N. Y.: McGraw-Hill Book Co. (Inc.), 1925. 358 p. An explanation of the principles of statistical methods—tabulation, graphs, use of index numbers, etc.

Mills, F. C. Statistical Methods Applied to Economics and Business. N. Y.: Henry Holt & Co., 1924. 604 p. A discussion of technique, graphic presentation, index numbers, and correlation methods.

Riegel, Robert. Elements of Business Statistics. N. Y.: D. Appleton & Co., 1924. 549 p. A statement of the fundamental principles of statistical methods and a discussion of the methods of collecting and tabulating statistical facts.

Schmeckebier, Lawrence T. The Statistical Work of the National Government. Baltimore: The Johns Hopkins Press, 1925. 574 p. A statement of Government statistical information available to business men and others doing research and investigative work of various kinds, together with a picture of present activities in this field and their historical background.

Secrist, Horace. Statistics in Business; Their Analysis, Charting, and Use. N. Y.: McGraw-Hill Book Co. (Inc.), 1921. 137 p. The use of statistics in business analysis, showing how and with what effect statistics may be applied in the solution of business problems.

United States Department of Commerce, Bureau of Foreign and Domestic Commerce. Statistical Abstract of the United States. Annual publication. Washington: Government Printing Office. A digest of data collected by all statistical agencies of the National Government, as well as those of a considerable number of private agencies, and one or two States.

Young, B. F. Statistics as Applied in Business. N. Y.: Ronald Press Co., 1925. 639 p. An explanation of the use of statistical information in the management of business.

CHARTS AND GRAPHS

Bivins, Percy A. The Ratio Chart in Business. N. Y.: Codex Book Co. (Inc.), 1926. 177 p. A presentation of the advantages of the ratio or logarithmic chart for showing a comparison of percentage variations, comparative trends, etc., together with the exact methods of its construction and use.

Brinton, W. C. Graphic Methods for Presenting Facts. N. Y.: The Engineering Magazine Co., 1914. 371 p. A handbook covering all types of charts, written primarily for the nontechnical man who may have occasional charts to prepare for reports, for magazine illustrations, or for advertising.

Haskell, A. C. Graphic Charts in Business. (1st ed., 2d printing.) N. Y.: Codex Book Co. (Inc.), 1924. 250 p. A discussion of graphic charts written for the purpose of showing the business man when and how graphic methods can best serve his purpose in the advertising, accounting, sales, purchasing, and other departments.

Karsten, K. G. Charts and Graphs. N. Y.: Prentice-Hall (Inc.), 1923. 724 p. A book which covers the making and use of charts.

Riggleman, J. R. Graphic Methods for Presenting Business Statistics. N. Y.: McGraw-Hill Book Co. (Inc.), 1926. 231 p. Contains the necessary information for the making and understanding of graphs.

Savage, Winfield A. Graphic Analysis for Executives. N. Y.: Codex Book Co. (Inc.), 1924. 144 p. Administrative control charts, sales charts, cost charts, budget control charts, routine charts, and organizations charts are all discussed as means of business control by visualization.

Smith, W. H. Graphic Statistics in Management. N. Y.: McGraw-Hill Book Co. (Inc.), 1924. 360 p. The standard forms and practices both in collecting and tabulating statistics and also in selecting and constructing graphs are presented, with the requirements of the different phases of business or the individual business kept in mind.

TRADE RELATIONS AND ARBITRATION

American Arbitration Association. The American Arbitration Year Book, 1927. N. Y.: American Arbitration Association, 1927. 1,152 p. A record of the practice of arbitration and what business is doing to establish commercial peace in this country. It contains reports on the arbitral activities of Federal Government departments, trade and professional organizations, chambers of commerce, and various other organizations which promote arbitration.

Annals of the American Academy of Political and Social Science, Philadelphia. Vol. CI, May, 1922. The Ethics of the Professions and of Business.

Birdseye, Clarence F. Arbitration and Business Ethics. N. Y.: D. Appleton & Co., 1926. 305 p. A study of the history and philosophy of the various types of arbitration and their relations to business ethics.

Bloomfield, Daniel, editor. Commercial Arbitration. N. Y.: H. W. Wilson Co., 1927. 341 p. A collection of the opinions, addresses, articles, and other recorded thought of the leaders in industrial and professional life on commercial arbitration.

Chamber of Commerce of the United States. Principles of Business Conduct. Washington: Chamber of Commerce of the United States, 1924. 22 p. A statement of the 15 fundamental principles of business conduct recommended by the Chamber of Commerce of the United States.

Cohen, Julius Henry. Commercial Arbitration and the Law. N. Y.: D. Appleton & Co., 1918. 339 p. A history of commercial arbitration and its relation to law.

Frederick, J. George. Book of Business Standards. N. Y.: Frank-Maurice, 1925. 209 p. A discussion of the moral standards in business; includes the existing codes of ethics of a number of business and manufacturing organizations.

Heermance, Edgar L. Codes of Ethics. Burlington: Free Press Printing Co., 1924. 525 p. A collection of ethical codes which have been adopted by business and professional groups.

Heermance, Edgar L. Ethics of Business. N. Y.: Harper & Bros., 1926. 244 p. An account of the growth of more advanced ethical standards among business groups.

Lee, James M. Business Ethics. A Manual of Modern Morals. N. Y.: Ronald Press Co., 1926. 312 p. A study of moral conduct in business from the point of view that looks outward. The appendix contains typical codes which have been adopted by trade groups.

Lord, Everett W. Fundamentals of Business Ethics. N. Y.: Ronald Press Co., 1926. 196 p. A presentation and explanation of the moral standards of modern business.

National Distribution Conference. Trade Relations. (Report of Committee II.) Washington: Chamber of Commerce of the United States, 1925. 93 p. A study of unethical practices or trade abuses existing in dealings between distributers and attributed largely to a state of distrust and misunderstanding between the parties concerned. This is considered not only from the point of view of friction but as an added expense of distribution.

Taeusch, Carl F. Professional and Business Ethics. N. Y.: Henry Holt & Co., 1926. 370 p. A discussion of the opportunities afforded in professional and business groups to interpret practical affairs philosophically by means of codes of ethics.

TRANSPORTATION AND WAREHOUSING

Grupp, George W. The Economics of Motor Transportation. N. Y.: D. Appleton & Co., 1924. 414 p. A study of the problems of installing and operating motor transportation service, discussed from the point of view of business.

Haring, H. A. Warehouses: Trade Customs and Practices; Financial and Legal Aspects. N. Y.: Ronald Press Co., 1925. 787 p. An encyclopedic volume packed with information on the merchandising, transportation, legal, banking, insurance, and similar relationships of the warehousing industry.

Huebner, Grover C., and Johnson, Emory R. The Railroad Freight Service. N. Y.: D. Appleton & Co., 1926. 589 p. An account of the railroad freight service as a whole and also in its several aspects, designed as a practical information book for shippers and business men.

Jones, Eliot. Principles of Railway Transportation. N. Y.: The Macmillan Co., 1924. 607 p. An exposition of railway economics.

Kennedy, Thomas Hart. Introduction to the Economics of Air Transportation. N. Y.: The Macmillan Co., 1924. 154 p. An analytical discussion of air transportation as a profitable business.

Miller, S. L. Railway Transportation; Principles and Point of View. Chicago: A. W. Shaw Co., 1924. 905 p. A discussion of passenger service, transportation costs in relation to social and trade developments, and other phases of rail transportation.

United States Congress. Joint Commission of Agricultural Inquiry. Transportation. (Part 3, House Rept. No. 408.) Washington: Government Printing Office, 1921. A study of the railroad facilities of the country, particularly from the point of view of their relationship to agriculture and industry.

United States Department of Commerce, Bureau of Foreign and Domestic Commerce. The Merchandise Warehouse in Distribution. Washington: Government Printing Office, 1925. 33 p. A study of the services and best practices in present-day merchandise-warehouse distribution. The advantages and service opportunities of storage warehouses are considered particularly from the point of view of better transportation.

Vanderblue, H. B., and Burgess, K. F. Railroads; Rates, Service, Management. N. Y.: The Macmillan Co., 1923. 488 p. A survey of the rights, duties, and obligations of shippers and carriers.

Wilson, G. Lloyd. Traffic Management. D. Appleton & Co., 1926. 453 p. A presentation of plans for the organization and administration of commercial and industrial traffic departments.

Zimmerman, Erich W. Ocean Shipping. N. Y.: Prentice-Hall (Inc.), 1921. 691 p. Contains material which refers primarily to the actual physical handling and transportation of the goods rather than the marketing phase of foreign trade.

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